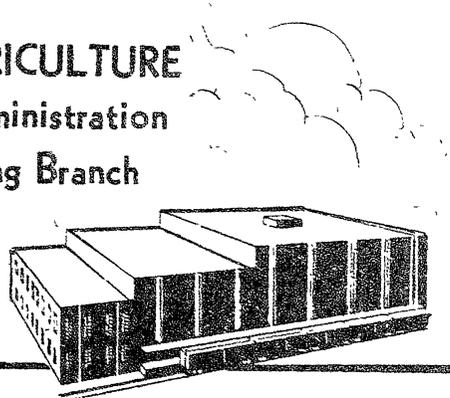


A Survey OF
**The CAPACITY of REFRIGERATED
 STORAGE WAREHOUSES
 in the United States**
AS OF OCTOBER 1, 1951

HL
 9227
 2572



U.S. DEPARTMENT OF AGRICULTURE
 Production and Marketing Administration
 Transportation and Warehousing Branch
 Washington, D.C.



CONTENTS

	Page
Scope and objectives of the survey.....	1
Definitions.....	2
Refrigerated storage capacity in the United States.....	5
Refrigerated storage capacity by geographic regions.....	13
Refrigerated storage capacity by States.....	21
Refrigerated storage capacity by cities.....	31
List of tables and charts.....	37

- - o o o - -

Under the new numbering system this publication becomes No. 16
in the series instead of Vol. XVI which would have been
the designation under the old system.

A *Survey* OF The **CAPACITY of REFRIGERATED STORAGE WAREHOUSES** in the United States

AS OF OCTOBER 1, 1951

SCOPE AND OBJECTIVES OF THE SURVEY

The October 1, 1951 survey of the capacity of refrigerated storage warehouses in the United States was the sixteenth biennial survey made by the United States Department of Agriculture on odd-numbered years from 1921 to 1951. All the biennial surveys were as of October 1, except the 1941 survey which was as of June 16. For the 1951 survey, warehousemen were asked to provide additional information at the request of the Defense Transport Administration.

Every effort was made to effect as complete a coverage as possible for this survey. Questionnaires were mailed to all the known public, private, and semi-private refrigerated storage facilities, to fruit houses (apple and grape) having artificially cooled storage space, and to meat-packing plants with refrigerated space used for storage purposes. It is believed, therefore, that the coverage of the refrigerated warehousing industry was practically complete.

Refrigerated warehouses included in this survey are facilities, artificially cooled to 50° F. or lower, wherein foodstuffs are generally stored for 30 days or more. Refrigerated facilities operated by wholesalers, jobbers, or retailers who do not store for a period of 30 days or longer were not included in the survey. Also, space in lockers of 25 cubic feet or less, plants owned by the Armed Services, the Natural Cooler Storage at Atchinson, Kans., and space in plants operated as part of a retail food business, hotel, or other establishment where persons are housed or fed were not included.

The replies to all questionnaires on storage capacity were carefully analyzed and checked against previous survey reports from the warehouses and in every case where there was a questionable entry, the warehouseman was requested to verify or correct his report. Warehousemen were asked to report all space leased to others, and meat-packers were asked to report only the space used for storage purposes.

The primary objectives of these biennial surveys are:

1. To measure the refrigerated storage capacity of the United States and to determine whether such space has expanded or decreased since the last survey, by how much, and in which areas.
2. To provide an accurate basis on which monthly analysis of storage occupancy can be reported in the periodic Cold Storage Report.

3. To provide information on which an orderly and efficient expansion program can be recommended or by which unneeded plant construction can be discouraged.
4. To aid in locating refrigerated storage space, particularly for heavy seasonal crops, in order to facilitate the preservation of foods.

DEFINITIONS

The terms used in this report are defined as follows:

Public general cold storage.—Any artificially cooled warehouse, the operator of which is engaged in storing food commodities, requiring refrigeration, for others for pay.

Private general cold storage.—Any artificially cooled warehouse, the operator of which conducts a warehousing business to facilitate his main function as a producer, processor, or distributor but does not store commodities for others for pay.

Semiprivate general cold storage.—Any artificially cooled warehouse, the operator of which uses part of the space to care for the storage of his own commodities and in addition stores in his plant various food commodities for others for pay.

Meat-packing establishment.—Any plant engaged in processing dressed animals and animal products for food. For the purposes of this report and survey, only that space which is used for the storage of products is included. Working space, chill rooms, and coolers used exclusively for hanging dressed carcasses prior to shipping are excluded.

Apple house.—Any warehouse, public, private, and semiprivate, the owner and operator of which is engaged mainly or exclusively in the storage of apples or pears.

Gross space.—The space inside refrigerated rooms, measured from wall to wall and floor to ceiling, excluding elevators, stairs, vestibules, and like enclosures.

Net piling space.—Space for the storage of commodities, that is, space inside rooms measured wall to wall and floor to ceiling, minus the space provided for ventilation (outside of pile), space occupied by coils, aisles, posts, sprinklers, and the like.

Sharp freezer.—Space capable of being held at 0° F. and below.

Freezer.—Space capable of being held at temperatures above 0° to 29° F. inclusive.

Cooler.—Space capable of being held at temperatures above 29° to 50° F.

Geographic regions.—The regions and States covered in the survey are as follows:

New England: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.

Middle Atlantic: New York, New Jersey, and Pennsylvania.

East North Central: Ohio, Indiana, Illinois, Michigan, and Wisconsin.

West North Central: Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.

South Atlantic: Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, and Florida.

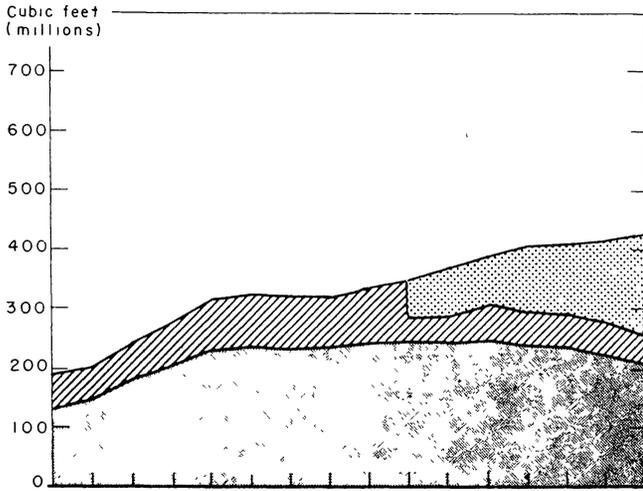
East South Central: Kentucky, Tennessee, Alabama, and Mississippi.

West South Central: Arkansas, Louisiana, Oklahoma, and Texas.

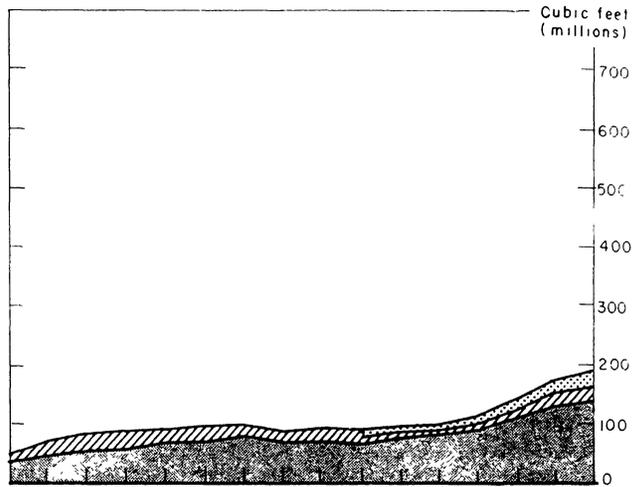
Mountain: Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, and Nevada.

Pacific: Washington, Oregon, and California.

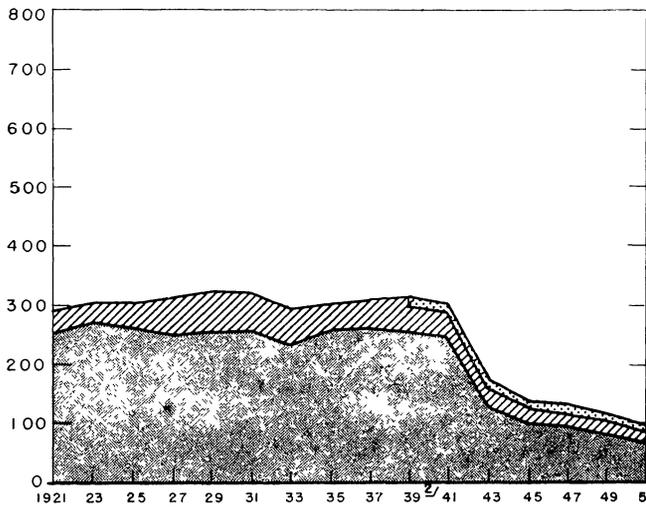
PUBLIC WAREHOUSES ^{1/}



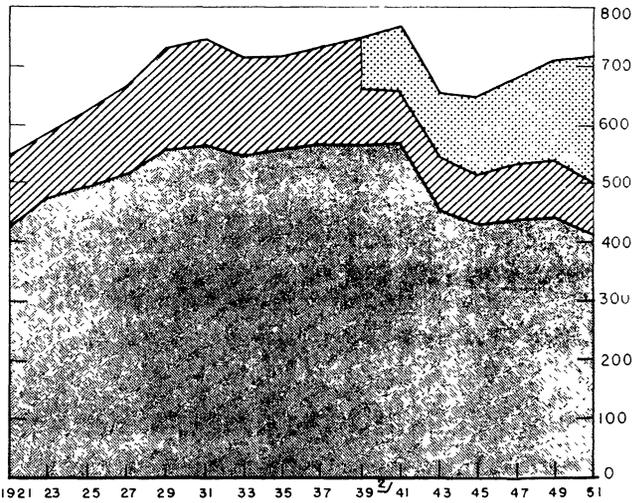
PRIVATE AND SEMIPRIVATE WAREHOUSES ^{1/}



MEAT-PACKING PLANTS



ALL REFRIGERATED WAREHOUSES



COOLER
 FREEZER
 SHARP FREEZER

^{1/} Includes apples houses

^{2/} Prior to 1939, sharp freezer space was not reported separately.

Figure I.—Distribution of gross refrigerated storage space, by temperature range and by type of warehouse, 1921-1951.

REFRIGERATED STORAGE CAPACITY IN THE UNITED STATES

Growth of Refrigerated Warehousing Industry

Gross capacity.—The Department of Agriculture initiated the statistical series of surveys on refrigerated warehouse capacity in the United States about 30 years ago. The report on the first survey, October 1, 1921, showed a total of nearly 544 million cubic feet of storage space as compared with a total of more than 711 million cubic feet of space reported (table 1 and fig. 1) on October 1, 1951. These two reports, however, are not directly comparable as the meat-packing plants were asked to report all refrigerated space from 1921 to 1941 whereas beginning with 1943 only refrigerated space used for storage purposes was reported. Therefore, the growth of the warehousing industry as reflected by this sixteenth biennial survey was much greater than the net increase of 167 million cubic feet indicated by the survey reports from 1921 to 1951.

In each successive survey beginning with the first, the warehousing industry's storage capacity increased consistently. Gains in excess of 40 million cubic feet prevailed during each survey period from 1921 until 1927 and by October 1, 1929, an additional total of 61 million cubic feet was added to bring the national capacity to 729 million cubic feet. Then, in the period that followed, the growth of the warehousing industry slackened. From 1929 to 1931 only a total of 12 million cubic feet was added to the national capacity of refrigerated space and from 1931 to 1935 a net loss of 30 million cubic feet occurred. The halt of the upward trend, however, was only temporary as each successive survey after 1935 indicated that the warehousing industry was again expanding its storage capacity. Increments of 19 million cubic feet, 16 million cubic feet, and 20 million cubic feet from 1935 to 1941 expanded the gross national storage capacity to 766 million cubic feet (table 2). Thus, from 1921 to 1941, the growth represented 222 million cubic feet, or an increase of 40 percent.

Because of the noncomparability of the data collected after 1941 with those of earlier years, warehouse capacity reflected an apparent decrease from 1941 to 1943. However, that decrease resulted from a change in the basic questionnaire under which meat-packing plants were instructed not to report, as storage space, refrigerated rooms used for cutting and boning meats, space used for cooling dressed carcasses, and similar working space.

Even with the change made in reporting storage space, total refrigerated warehouse capacity continued to increase because of the growth in public, private, and semiprivate storage space. These facilities expanded almost 150 million cubic feet from 1941 to 1951 and helped to increase the national capacity of refrigerated storage to 711 million cubic feet distributed according to temperature range, as follows: Over 212 million cubic feet of sharp freezer space; about 92 million cubic feet of freezer space; and almost 407 million cubic feet of cooler space (fig. 2).

Sharp freezer and freezer capacity.—Of greater importance than the continued upward trend in total refrigerated storage capacity was the change in the distribution of this space according to temperature range. In the years prior to 1939, space capable of holding freezer temperatures amounted to less than one-fourth of the total refrigerated space in this country despite a long-term growth of 40 million cubic feet from 1921 to 1937. Since then, refrigerated

storage capacity almost doubled—advancing from 162 million cubic feet (October 1, 1937) to 304 million cubic feet (October 1, 1951). Much of this increase, however, was in sharp freezer space (temperature range of 0° F. and below), which more than doubled, whereas freezer space (temperature above 0° to 29° F. inclusive) decreased. Thus, in the period from 1939 to 1951, national capacity of sharp freezer space expanded from 87 million cubic feet to more than 212 million cubic feet, and at the same time freezer space was reduced from 97 to 92 million cubic feet. Aside from the magnitude of the change, which was significant, the composition of national refrigerated storage capacity was altered by the expansion of sharp freezer space to the extent that in 1951 the ratio of sharp freezer space to other types of space was about 1:2 as compared with a ratio of almost 1:8 in 1939; 1:5 in 1943; and 1:3 in 1949. At this rate, it would not be inconceivable to expect that in the future the warehousing industry would have a greater storage capacity in the range of 0° F. and below than in the temperature range above 0° F.

Cooler space.—Since 1943, the trend has been downward for national cooler capacity and by 1951 a reduction of about 10 percent had resulted. With 407 million cubic feet of space available on October 1, 1951, cooler space represented almost three-fifths of the national capacity as compared with four-fifths in 1925 and an average of three-fourths from 1921 to 1939. Cooler capacity trend gave no evidence that it was becoming less important in the national picture until World War II as storage capacity gains were most consistent except during the mid-1930's. In October 1921, more than 421 million cubic feet of cooler space was reported by the Nation's warehouses, and by 1931 the cooler space totaled almost 562 million cubic feet. With additional capacity added in the following 10 years, the United States total storage capacity amounted to 567 million cubic feet by October 1, 1941. Although these data include nonstorage rooms in meat-packing plants, they are, nevertheless, comparable from 1921 to 1941—but not comparable with data collected after 1941.

Characteristics of the Refrigerated Warehousing Industry

Number and size of plants.—Refrigerated storage facilities are in every State of the United States—ranging from 1 warehouse in Nevada to 299 facilities in New York. The Pacific Coast States, with 447 plants, lead all others in number of refrigerated facilities and are followed by the Middle Atlantic States, with 432 plants. More than half of all refrigerated warehouses and more than half of the storage space may be found east of the Mississippi River. Warehouse capacity most common, according to the 1951 survey, was greater than 100,000 cubic feet but not greater than 200,000 cubic feet net piling space. About two-thirds of all warehousing plants contain no more than 200,000 cubic feet; four-fifths, no more than 400,000 cubic feet; and nine-tenths of all plants contain no more than 700,000 cubic feet (fig. 3).

Minus 20° F. capacity.—Space capable of holding minus 20° F. temperature (table 11) was reported by 372 warehouses with a gross capacity of almost 43 million cubic feet. Although the Pacific Coast States ranked first in the number of plants having this type of space, the East North Central States, with 14 million cubic feet, led all other regions on the basis of capacity. Next in order of importance were the West North Central States (8 million cubic feet); Pacific Coast States (5.8 million cubic feet); and the Middle Atlantic States (5.5 million cubic feet).

Table 1.--Total refrigerated storage capacity in the United States, by type of warehousing operation, October 1, 1951

Type of refrigerated warehouse ^{1/}	Plants	Gross space ^{1/}				Net piling space ^{1/}			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	cu. ft.	cu. ft.	cu. ft.	cu. ft.	cu. ft.	cu. ft.	cu. ft.	cu. ft.
Public general.....	615	168,634	50,171	156,141	374,946	120,066	36,305	115,107	271,478
Private and semi-private general.....	472	28,913	18,376	47,366	94,655	21,225	12,809	33,993	68,027
Meat-packing plant....	216	14,180	17,737	66,312	98,229	9,269	11,470	45,433	66,172
Apple houses:									
Public.....	141	754	997	48,417	50,168	640	861	40,041	41,542
Private and semi-private.....	469	229	4,239	88,550	93,018	193	3,124	71,481	74,798
Total.....	1,913	212,710	91,520	406,786	711,016	151,393	64,569	306,055	522,017

^{1/} For definitions of terms used, see page 2.

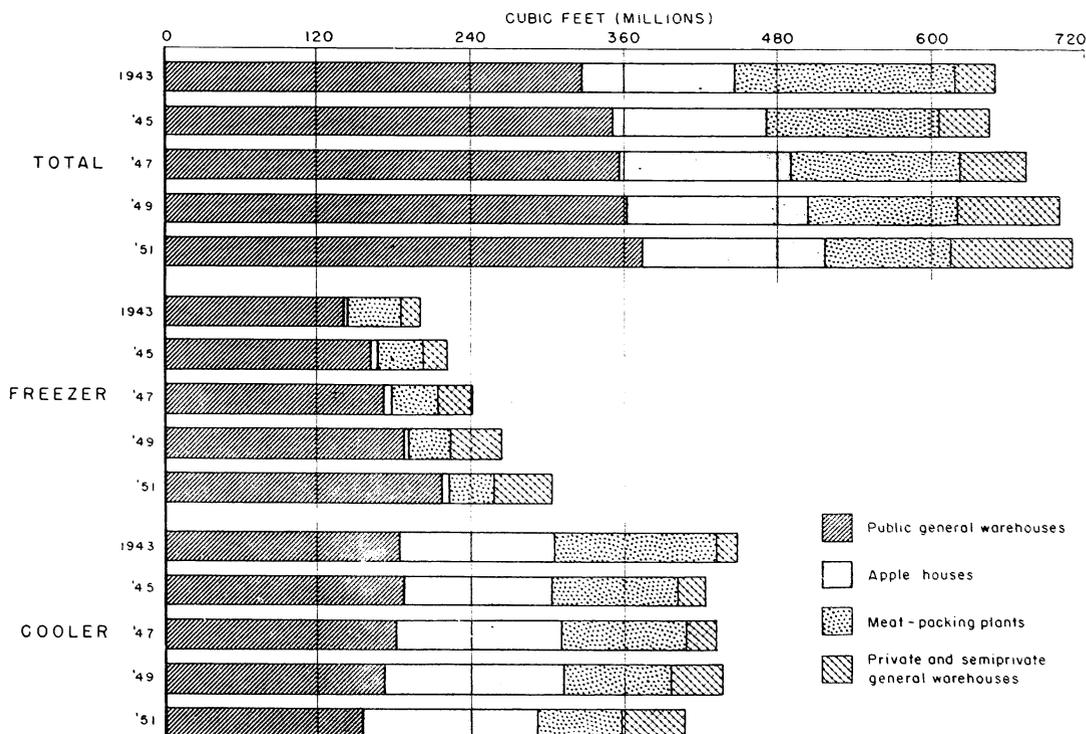


Figure 2.--Distribution of gross refrigerated storage space, by type of warehouse, October 1, 1943 - October 1, 1951.

Storage in-transit privileges.—Aside from its function to carry over perishables and semiperishables from one season to another, perhaps the greatest advantage resulting from the refrigerated storage industry is its role in serving communities remote from points of production thereby increasing the markets for many products. Accordingly, the location of warehouses at or near rail sidings prevails to a great extent. An analysis of the questionnaires received for the 1951 survey revealed that almost 70 percent of all the storage facilities may be found on railroad sidings and two out of three such facilities had storage in-transit privileges.

Palletization.—To move commodities into and out of storage, some warehousemen use mechanical equipment such as a fork lift truck which, with pallets, enables the operator to move unit loads. Palletized operations were reported by 344 facilities, of which only 161 were fully palletized warehouses; the others were partially palletized. The number of electric-driven trucks in use totaled 788 as compared with 350 gas-driven trucks.

Convertible space.—Although the refrigerated storage industry has placed great emphasis on the construction of new space capable of holding freezer temperatures, and some cooler space has been converted to freezer space, the national capacity of cooler space is not limited to the 407 million cubic feet reported on October 1, 1951. Almost a fifth more cooler space potentially could be made available if needed as the warehousing industry has about 75 million cubic feet of freezer space capable of holding cooler temperatures. Located primarily in the Middle Atlantic, East North Central, West North Central, West South Central, and Pacific regions, these geographic regions could meet any unusual demands for cooler space.

Public refrigerated warehouses.—The refrigerated warehousing industry as we know it today is made up largely of warehouses which offer storage space to the public for pay. These facilities include apple houses as well as general warehouses. Up until 1931, the public warehousing industry's relative share of the national storage capacity was not as great as it has been since that date. An analysis of warehouse capacity from 1921 to 1925 showed that less than three-eighths of the storage space in the country was accounted for by public facilities but the ratio increased to more than two-fifths from 1925 to 1931. Public warehouse space maintained its relative position in the industry during the 1930's even though a space loss, equivalent to 9 million cubic feet, from 1931 to 1933 set the industry back to the capacity level reported on October 1, 1929. From 1933 to the present time public warehouse capacity gained consistently to the extent that, since 1941, about three-fifths of all the refrigerated space in the Nation has been maintained for public warehousing purposes—141 plants characterized as specializing in apple storage and 615 plants designated as general warehouses (table 1).

Public warehouse space, which totaled 425 million cubic feet in the nation, may be found in every State except Wyoming. For public use a total of 169 million cubic feet of space is capable of maintaining temperatures of 0° F. and below, including 32 million cubic feet of space capable of maintaining minus 20°. To keep pace with the needs of customer industries since 1939, public storage warehouses have added over 100 million cubic feet of space to their sharp freezer capacity and 9 million cubic feet to freezer space. So great has been its expansion that total freezer space in 1951 was equivalent to four times that in 1923.

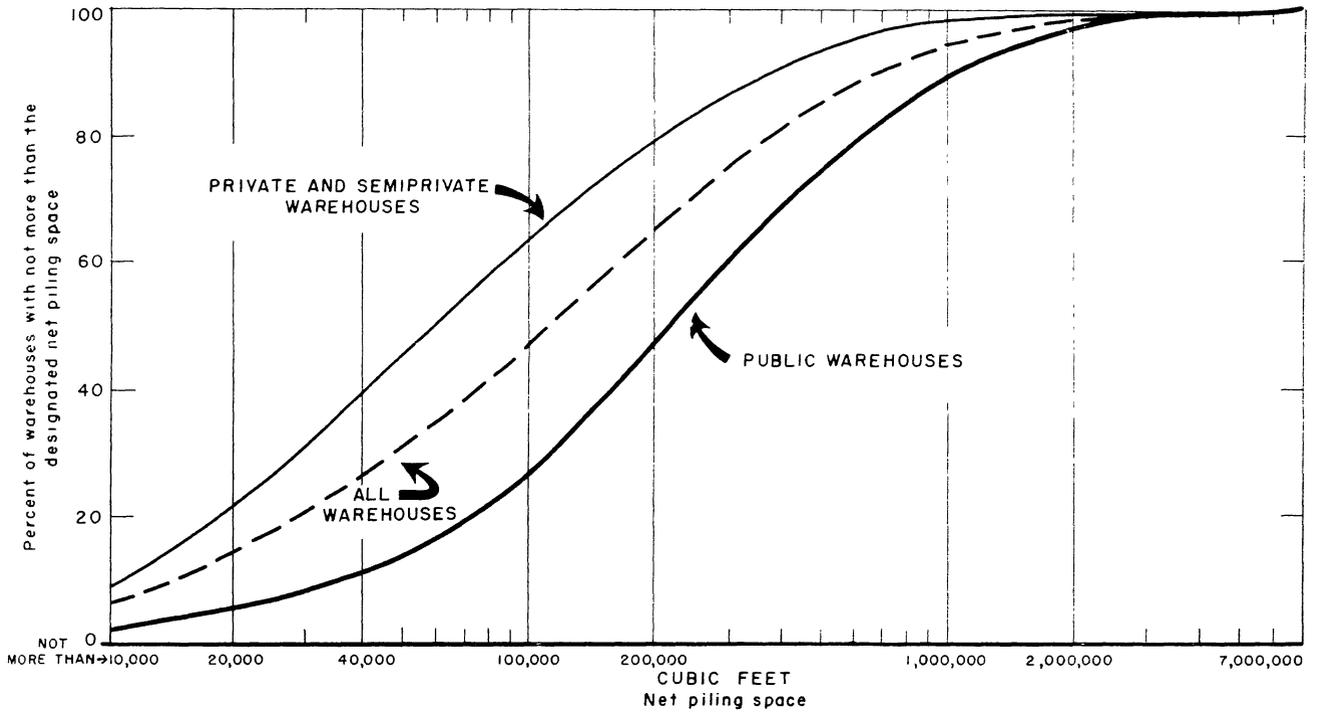


Figure 3.--Distribution of refrigerated storage capacity by size of warehouse, October 1, 1951.

Table 2.--Total gross refrigerated storage capacity in the United States, by type of warehouse, October 1, 1929 - October 1, 1951

Type of refrigerated storage	1929	1931	1933	1935	1937	1939	1941	1943	1945	1947	1949	1951
	1,000 cu. ft.											
Public 1/.....	316,810	325,703	317,211	322,450	333,833	351,368	371,771	389,991	403,832	408,232	413,256	425,114
Private 1/.....	29,133	35,222	32,739	31,051	33,890	32,072	43,973	49,544	62,291	83,781	85,417	94,929
Semiprivate 1/.....	60,322	58,853	64,718	53,853	52,957	50,438	48,407	42,081	45,254	52,035	85,718	92,744
Meat-packing plant 2/.	322,330	321,065	297,274	303,206	309,442	312,562	302,232	169,650	134,814	130,993	116,324	98,229
Total.....	728,595	740,843	711,942	710,570	730,322	746,440	766,383	651,266	646,191	675,041	700,778	711,016

1/ Includes apple house refrigerated storage space.

2/ The apparent decrease in over-all storage space since 1941 is due to meat-packing plants not reporting refrigerated working space as they did in previous years.

Storage intransit privileges were available in 427 public general warehouses, according to reports received, and in addition these general warehouses were using more than half (431) of all the electric fork lift trucks used in palletized operations and they maintained an additional 111 gas-driven trucks.

Private and semiprivate warehouses.—With the expansion in the frozen food industry there has been an attendant increase in private and semiprivate warehousing space. Processors and growers of agricultural perishables who find it to their advantage to have near at hand the space needed for their own use often build warehouse facilities to facilitate their function as producer, processor or distributor. Within recent years private and semiprivate warehouses have increased in number and capacity.

In the early years, 1921 to 1933, refrigerated storage space classified as private and semiprivate made successive gains, from a total capacity of 56 million cubic feet to 97 million cubic feet; however, a cutback in space during the mid-1930's brought the total capacity down to 83 million cubic feet by 1939. Then, beginning with 1941 and up to the present time, the industry not only recaptured its losses but gained so consistently that total capacity equaled 188 million cubic feet on October 1, 1951. (Tables 1 and 2 and figs. 1 and 2.)

Percentagewise, the capacity increase of private and semiprivate facilities indicated a more rapid rate of growth than that reported by public warehouses and in regions where public general space experienced net losses, private and semiprivate general space showed net gains. This was particularly true in the Middle Atlantic and West North Central regions. As further indication of the rising importance of this type of warehousing activity, its relative position within areas has been improving. For example, in the South Atlantic region, private and semiprivate warehouses now comprise 12 percent of the area's total space; in 1949 they comprised 8 percent. On the west coast the percentage increased from 12 to 16 percent, and in the Mountain States the increase was from 9 to 15 percent.

Meat-packing plants.—Since the number of meat-packing plants in the United States is greater than the number that reported for this sixteenth biennial survey, it might be construed that the data were incomplete with respect to storage space in meat-packing plants. However, as previously pointed out, questionnaires were mailed only to those meat-packing plants that stored products for at least 30 days. Accordingly, a large number of slaughterers were excluded since many of them use their refrigerated space to accumulate inventories which generally move before the end of 30 days.

By this system of exclusion, the number of meat-packing plants with refrigerated storage space totaled 216 on October 1, 1951 (table 1), with a warehouse capacity of 98 million cubic feet. These warehouses are located principally in meat-slaughtering areas, although some meat-packers who are engaged in further processing of dressed animals conduct their warehousing operations in areas other than the slaughtering places.

East and West North Central regions, having more than two-thirds of the meat-packing space, have since early days exceeded all other regions in this type of warehousing activity. Because the meat-packing industry has relatively little capacity in the range capable of holding freezer and sharp freezer temperatures, more than two-thirds of its capacity falls in the cooler classification. In the East North Central States, the ratio is even higher with about three-fourths of

the space unable to hold freezer temperatures. Meat-packing plant storage space in Illinois and Iowa—representing 15 and 12 million cubic feet, respectively—almost surpassed the combined capacities of such space in New England, Middle Atlantic, South Atlantic, East South Central, West South Central, Mountain, and Pacific regions which, collectively reported only 30 million cubic feet of space.

Apple houses.—Three well-defined areas support about 90 percent of refrigerated space used almost exclusively for the storage of apples and pears. On the west coast, more than 80 million cubic feet of space—most of it in Washington—represented this type of activity as compared with 25 million cubic feet of space reported by the States in the Middle Atlantic region. The apple houses in Virginia and West Virginia, with 21 million cubic feet of space, accounted for the major share of the regional total refrigerated capacity. Additional apple house storage space was reported for the New England and East North Central States, each region reporting approximately 7 million cubic feet of refrigerated space. This industry maintains about one-third of all the cooler space in the country and has 610 plants engaged in storage activities. However, of this number, only 141 plants are public storage warehouses, the remainder—469—are private and semi-private facilities.

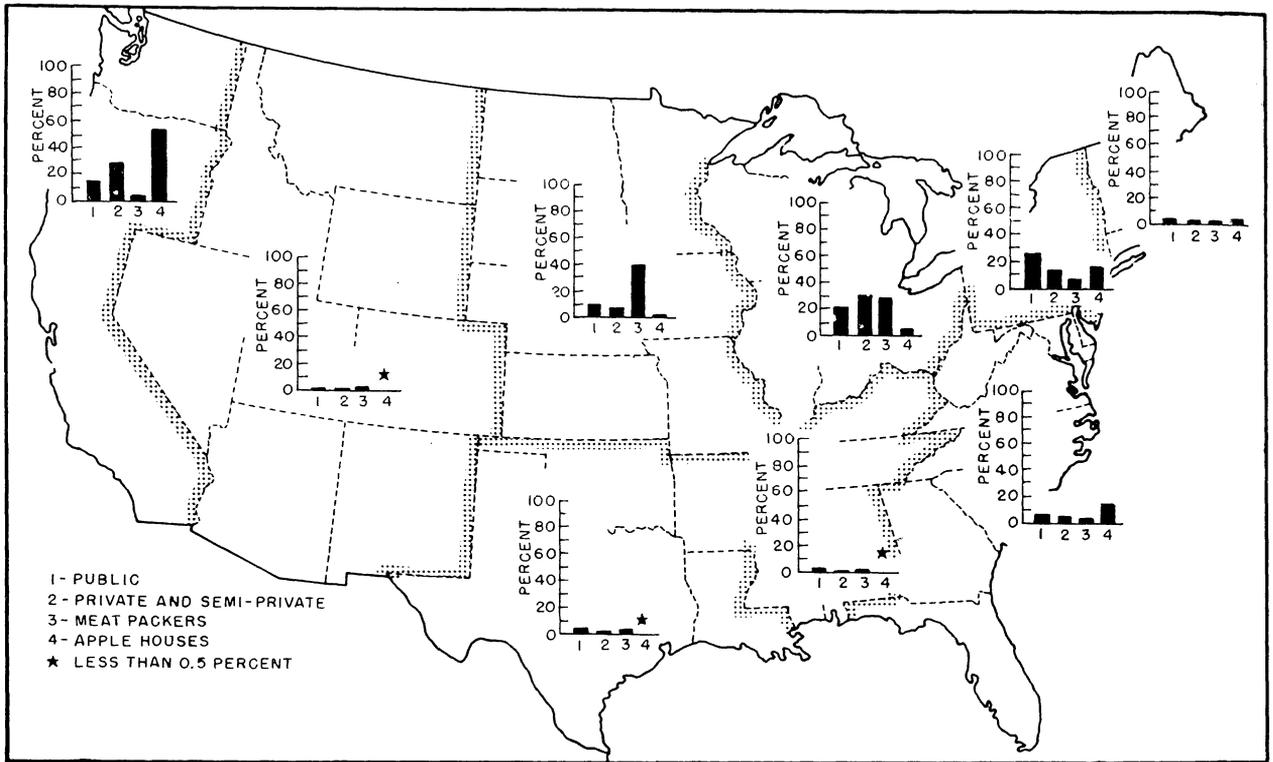


Figure 4.--Regional distribution of gross refrigerated storage space in the United States, by type of warehouse operation, October 1, 1951.

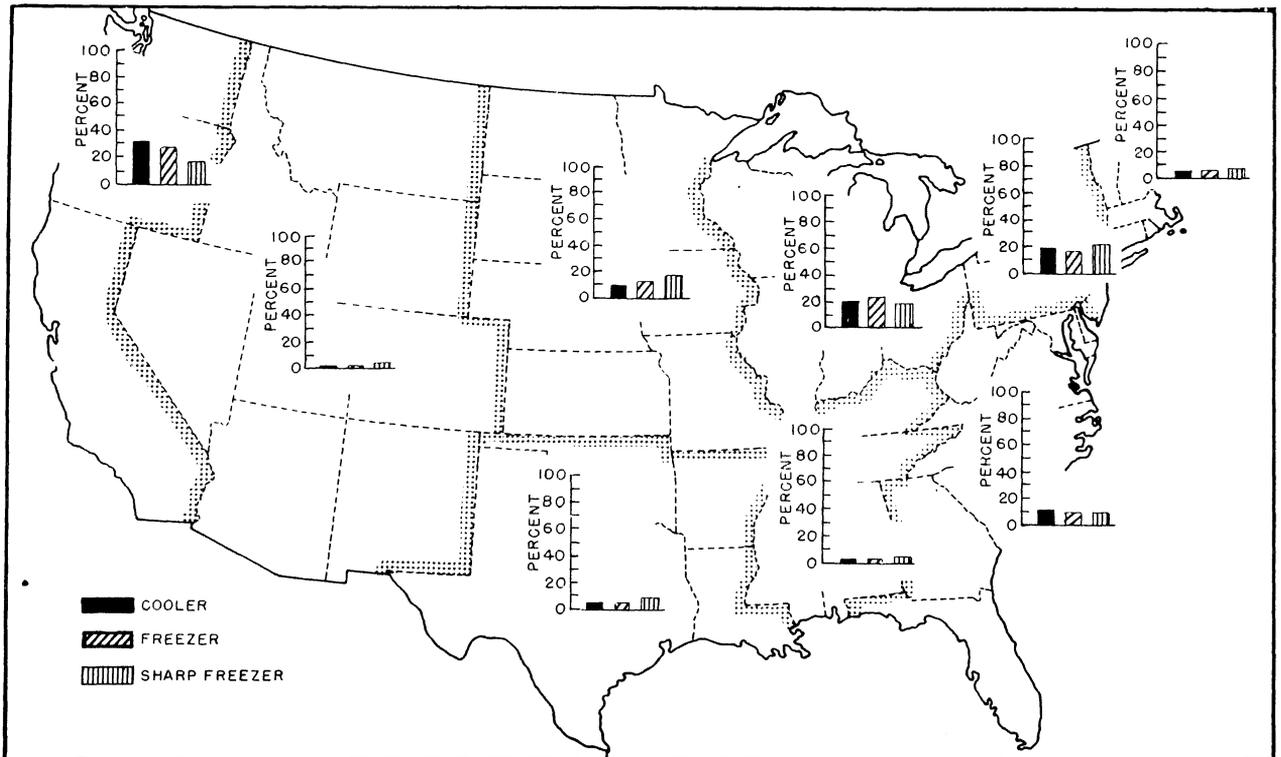


Figure 5.--Regional distribution of refrigerated net piling space in the United States, by temperature range, October 1, 1951.

REFRIGERATED STORAGE CAPACITY, BY GEOGRAPHIC REGIONS

Regional gross refrigerated storage capacity in the United States follows a pattern created by the agricultural and economic characteristics common to the region. Thus, specialized warehousing activities have been developed to meet the specific needs of the area in preserving and marketing the food perishables grown or brought into the region. This situation has prevailed for many years and even though markets today are nearer to points of agricultural production, because of faster transportation, specialized storages are becoming more important in all regions.

On the west coast the three States—Washington, Oregon, and California—comprising this geographical area have a total gross refrigerated warehouse capacity greater than any other geographical division (table 3 and fig. 6). Only 10 years ago (1941) the Pacific region ranked fourth in the Nation with 120 million cubic feet of refrigerated space, whereas on October 1, 1951, refrigerated gross storage capacity totaled almost 180 million cubic feet which was 33 million cubic feet more than the next leading area—the Middle Atlantic region. Since the warehouse capacity survey in 1949, the Pacific region reported a gross expansion of almost 18 million cubic feet of space which is in contrast to a loss in gross warehouse capacity reported by the Middle Atlantic, East North Central, West North Central, East South Central and West South Central regions. In addition to the Pacific coast increase, only one other region—the South Atlantic—reported a significant gain (fig. 7). In the latter region, warehousing capacity has been increasing steadily since 1941 and by October 1, 1951, gross refrigerated warehouse space totaled 66 million cubic feet—a gain of 10 million cubic feet over the capacity reported in 1949 and a gain of 20 million cubic feet since 1941.

Although Pacific coast facilities led in total warehouse capacity and exceeded by far the gains reported by other regions, all the reported increase since 1949 cannot be attributed to new constructions. Coverage for the 1951 survey was more complete than for the previous one, especially in the case of private warehouse facilities used almost exclusively for the storage of grapes, but some new facilities were built on the west coast and this additional space is reflected in the capacity totals for public general warehouses (table 4) and apple houses (tables 7, 8, and 9).

In the fall of each year when the Nation's refrigerated warehouses are generally carrying their maximum tonnage, Pacific coast facilities rank first in the Nation in the quantities of fresh fruits stored and second with respect to the quantities of frozen fruits and vegetables in refrigerated facilities. To accommodate the needs of this region for the storage of fresh fruits, frozen fruits, and frozen vegetables, refrigerated warehouse space is distributed primarily between public general warehouse space and apple house space. The latter represents almost half of the regional space and the former accounts for about three-eighths of the space. Because of the predominance of apple warehouses on the west coast, this region alone has more than half (56 percent) of all such space in the country, and, in addition, it has about 30 percent of the private and semiprivate warehouse space to accommodate the processing and storing of foods. Complementing these facilities, an additional 65 million cubic feet of public general warehouse space represents almost a fifth of the national total capacity (fig. 4).

Thus, with respect to the distribution of space on the west coast, public general warehouses and apple house facilities prevail to a much greater extent than they do in other regions. As a consequence, a preponderance of freezer and cooler space is located in the Pacific Coast region which ranks first in the Nation (fig. 5) with respect to net piling capacity, and fourth with respect to sharp freezer capacity.

Moving eastward to the Nation's great terminal and port areas—New York, New Jersey, and Pennsylvania—the Middle Atlantic region represents the second leading storage area with respect to gross refrigerated capacity. Despite a loss of almost 3 million cubic feet of storage space since 1949, this region continues to lead all others in the quantities of frozen fruits and frozen vegetables stored within its boundaries and it ranks second in the storage of selected dairy products, poultry, and eggs.

To accommodate the many warehousing activities needed to supply the great metropolitan areas in the Middle Atlantic region, food storers and marketers have available more public general warehouse space in this area than can be found anywhere. On October 1, 1951, gross refrigerated capacity totaled 147 million cubic feet (table 3) of which almost 70 percent or 99 million cubic feet (table 4) were devoted to public general warehousing; almost 14 million cubic feet were classified as private and semiprivate storage space; and 25 million cubic feet were used primarily for the storage of apples thereby ranking this region second in the Nation with respect to apple storage facilities (table 7).

Table 3.-- Total refrigerated storage capacity of all types of warehouses, by regions, October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
New England.....	187	13,934	4,830	14,433	33,197	8,708	3,402	10,679	22,789
Middle Atlantic.....	432	45,212	15,618	85,977	146,807	31,284	11,089	64,799	107,172
East North Central....	339	38,186	20,997	83,426	142,609	27,849	13,921	61,288	103,058
West North Central....	149	34,435	11,664	39,868	85,967	24,318	7,722	27,078	59,118
South Atlantic.....	183	19,627	7,905	38,462	65,994	13,934	6,026	30,792	50,752
East South Central....	45	5,438	1,988	6,574	14,000	3,845	1,343	5,111	10,299
West South Central....	78	15,436	3,049	11,532	30,017	11,596	2,177	8,522	22,295
Mountain.....	53	6,593	866	5,179	12,638	4,883	574	3,556	9,013
Pacific.....	147	33,849	24,603	121,335	179,787	24,976	18,315	94,230	137,521
United States.....	1913	212,710	91,520	406,786	711,016	151,393	64,569	306,055	522,017

With millions of pounds of foods received regularly for storage, the Middle Atlantic region has a well-balanced distribution of refrigerated space to accommodate fresh and frozen foods with equal facility. About a fifth of the national cooler capacity is located in New York, New Jersey, and Pennsylvania, and freezer capacity represents almost a fifth of the national capacity (17 percent). Moreover, this region ranks first in the Nation with respect to capacity—45 million cubic feet—of sharp freezer space (fig. 5), of which almost 6 million cubic feet of space are capable of holding minus 20° F. (table 11).

Ranking third in the Nation with respect to gross refrigerated storage capacity is the East North Central region which comprises the following States: Ohio, Indiana, Illinois, Michigan, and Wisconsin. Collectively, these States have about 143 million cubic feet of space (table 3) of which more than half is devoted to public general warehousing; about a fifth each to private and semi-private general, and meat-packing; and the remainder (5 percent) to apple storage. Storage commodities predominating in this region are poultry, cheese, shell eggs, frozen eggs, dairy products, frozen fruits, and meats. Although more than one-fourth of the average monthly stores in the area is comprised of meats, the East North Central region leads all others in the storage of frozen poultry, shell eggs, and cheese, and ranks second in the Nation for the storage of frozen eggs, butter, frozen fruits, and meats.

Cooler net piling space in the East North Central region is equivalent to about one-fifth of the national warehousing capacity (fig. 5), and this region contains more than one-fifth of the freezer space in the country. Its capacity for sharp freezing is second only to that in the Middle Atlantic region, and it ranks first in the Nation with 14 million cubic feet of space capable of holding minus 20° F. (table 11).

West of the Mississippi River in the States comprising the West North Central region is to be found the fourth largest concentration of refrigerated warehouse space. Composed largely of meat-packing plants—33 million cubic feet (table 6)—and public warehouse space—39 million cubic feet (table 4)—the region has a total storage capacity of 86 million cubic feet. During the 2-year interval since the last survey, warehouse capacity in the area decreased almost 14 million cubic feet, almost all of which was in meat-packing plants. This decrease resulted because: (1) storage space was made unusable by the floods in 1951 and was not put back into operation; and (2) more accurate reports from meat-packers excluded working space from capacity totals.

The description of regional storage capacity thus far has indicated that of the four leading areas, two are west of the Mississippi River—Pacific and West North Central—and two are east of the river—Middle Atlantic and East North Central. In 1949 the western regions totaled 262 million cubic feet of storage space, and this total was increased to 266 million cubic feet by October 1, 1951. During the comparable period, storage space in the eastern regions decreased 3 million cubic feet, reducing the total to 290 million cubic feet.

The downward trend in gross storage capacity evidenced in almost all the regions east of the Mississippi River would have been even greater were it not for additional space being made available in the South Atlantic and New England regions. Space in the South Atlantic region has been increasing steadily since 1941—almost 50 percent more space being added—an increase exceeded only by

Table 4.--Refrigerated storage capacity of public general warehouses, by regions, October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
New England	35	12,673	3,106	4,298	20,077	7,833	2,077	2,810	12,720
Middle Atlantic.....	135	41,558	10,345	47,175	99,078	28,863	7,395	34,792	71,050
East North Central....	85	30,389	8,159	38,464	77,012	22,276	5,626	28,704	56,606
West North Central....	61	21,800	3,180	13,855	38,835	15,860	2,117	9,985	27,962
South Atlantic.....	80	12,499	6,111	14,402	33,012	8,632	4,612	10,496	23,740
East South Central....	26	4,983	1,676	4,711	11,370	3,538	1,144	3,663	8,345
West South Central....	47	13,776	2,136	7,538	23,450	10,340	1,575	5,559	17,474
Mountain.....	24	4,325	238	2,189	6,752	3,122	195	1,658	4,975
Pacific.....	122	26,631	15,220	23,509	65,360	19,602	11,564	17,440	48,606
United States	615	168,634	50,171	156,141	374,946	120,066	36,305	115,107	271,478

Table 5.--Refrigerated storage capacity of private and semiprivate general warehouses, by regions, October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
New England	22	700	1,275	832	2,807	515	1,028	704	2,247
Middle Atlantic.....	95	2,831	3,466	7,605	13,902	1,887	2,377	5,153	9,417
East North Central....	111	5,061	7,963	16,552	29,576	3,674	5,162	11,456	20,292
West North Central ...	37	5,035	492	2,492	8,019	3,646	329	1,762	5,737
South Atlantic.....	35	6,591	534	786	7,911	4,905	367	649	5,921
East South Central....	6	185	24	418	627	128	16	340	484
West South Central....	15	936	81	923	1,940	754	68	686	1,508
Mountain.....	17	1,134	41	733	1,908	932	29	543	1,504
Pacific.....	134	6,440	4,500	17,025	27,965	4,784	3,433	12,700	20,917
United States	472	28,913	18,376	47,366	94,655	21,225	12,809	33,993	68,027

the growth of space reported on the west coast. Regional capacity of the South Atlantic States totaled about 66 million cubic feet on October 1, 1951, as compared with 56 million cubic feet reported in 1949. In this region public general warehouse space reflected a gain of more than 7 million cubic feet and private and semiprivate general space almost doubled since 1949 with 8 million cubic feet being reported in operation at the time of this survey (table 5).

New England refrigerated warehouses added almost 3 million cubic feet of storage space by October 1, 1951, to bring their total capacity to 33 million cubic feet. Public general warehousing predominates in this area as about three-fifths of the regional capacity is devoted to this type of warehousing. Moreover, the increase reported accrued from expansion in public warehousing space which now totals more than 20 million cubic feet, bringing the regional total capacity to the rank of sixth in the Nation.

Of the remaining three regions, their standing in the national picture is as follows: West South Central, East South Central, and Mountain. In each of these areas, public general warehousing activities have greater standing than other types of refrigerated facilities. The storage space in the West South Central region is 30 million cubic feet of which more than three-fourths is devoted to public general warehousing. On the basis of other services available in the area, cooler and freezer capacities amount to 12 and 3 million cubic feet, respectively, and, in addition, the area has 15 million cubic feet of sharp freezer space. Unlike other area distributions, the relationship of sharp freezer space to non-sharp freezer space is much higher in the West South Central region than in the other areas.

The results of the 1951 survey again point out the importance of areas east of the Mississippi in the preservation and storage of the Nation's perishables and semiperishables. Regions east of this dividing line have more than half of the refrigerated space in the Nation and have expanded their gross capacity by about 2 percent since 1949 and 7 percent since 1943. Generally, the increase is not an outgrowth of all areas adding new space but rather a result of new industries developing within an area which formerly had no need for additional warehouse space. To meet this area demand, new facilities are being built or existing space increased. The older and more established storage areas are increasing capacity in the low temperature range, where the need is greatest, and at the same time they are reducing cooler capacity which results in an over-all reduction in total space. Thus, the Middle Atlantic, East North Central, and East South Central regions have lost about 4 million cubic feet of space since 1949 and the New England and South Atlantic States not only made up this deficit but added an additional 8 million cubic feet of space.

West of the Mississippi, warehouse space increased 14 percent since 1943 and this area is gradually reducing the capacity difference between it and the eastern half of the Nation. The 1951 survey indicated that this difference in storage capacity amounted to 94 million cubic feet of space; in 1943 the difference was 116 million cubic feet. Largely through new space and better coverage, the Pacific coast region has moved to the forefront in total refrigerated capacity and may become even more important in the Nation if other areas continue to lose space. Since 1949, public, private, and semiprivate storage space increased 16 million cubic feet and apple house space increased almost 2 million cubic feet in the Pacific region.

Table 6.--Refrigerated storage capacity of meat-packing plants, by regions, October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.							
New England.....	6	542	394	2,211	3,147	346	256	1,453	2,055
Middle Atlantic.....	41	398	952	7,132	8,482	197	608	4,801	5,606
East North Central....	54	2,677	4,820	21,808	29,305	1,851	3,093	15,856	20,800
West North Central....	44	7,600	7,992	22,782	38,374	4,812	5,276	14,711	24,799
South Atlantic.....	14	252	552	1,973	2,777	138	404	1,503	2,045
East South Central....	12	270	288	1,070	1,628	179	183	801	1,163
West South Central....	14	713	832	2,914	4,459	492	534	2,154	3,180
Mountain.....	11	1,134	587	2,249	3,970	829	350	1,348	2,527
Pacific.....	20	594	1,320	4,173	6,087	425	766	2,806	3,997
United States.....	216	14,180	17,737	66,312	98,229	9,269	11,470	45,433	66,172

Table 7.--Total refrigerated storage capacity of apple houses, by regions, October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.							
New England.....	124	19	55	7,092	7,166	14	41	5,712	5,767
Middle Atlantic.....	161	425	855	24,065	25,345	337	709	20,053	21,099
East North Central...	89	59	55	6,602	6,716	48	40	5,272	5,360
West North Central...	7	-	-	739	739	-	-	620	620
South Atlantic.....	54	285	708	21,301	22,294	259	643	18,144	19,046
East South Central and West South Central....	3	11	-	532	543	10	-	430	440
Mountain and Pacific.....	172	184	3,563	76,636	80,383	165	2,552	61,291	64,008
United States.....	610	983	5,236	136,967	143,186	833	3,985	111,522	116,340

Table 8.--Refrigerated storage capacity of public apple houses, by regions
October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	<u>Number</u>	<u>1,000 cu. ft.</u>							
New England.....	7	7	-	708	715	6	-	568	574
Middle Atlantic.....	42	312	287	13,110	13,709	238	241	10,787	11,266
East North Central....	24	30	33	3,610	3,673	24	25	2,835	2,884
West North Central....	6	-	-	605	605	-	-	515	515
South Atlantic.....	24	285	572	15,114	15,971	259	527	12,950	13,736
West South Central and Mountain.....	3	11	-	165	176	10	-	130	140
Pacific.....	35	109	105	15,105	15,319	103	68	12,256	12,427
United States.....	141	754	997	48,417	50,168	640	861	40,041	41,542

Table 9.--Refrigerated storage capacity of private and semiprivate apple houses,
by regions, October 1, 1951

Region	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	<u>Number</u>	<u>1,000 cu. ft.</u>							
New England.....	117	12	55	6,384	6,451	8	41	5,144	5,193
Middle Atlantic.....	119	113	568	10,955	11,636	99	468	9,266	9,833
East North Central and West North Central....	66	29	22	3,126	3,177	24	15	2,542	2,581
South Atlantic and East South Central....	31	-	136	6,562	6,698	-	116	5,501	5,617
Mountain and Pacific.....	136	75	3,458	61,523	65,056	62	2,484	49,028	51,574
United States.....	469	229	4,239	88,550	93,018	193	3,124	71,481	74,798

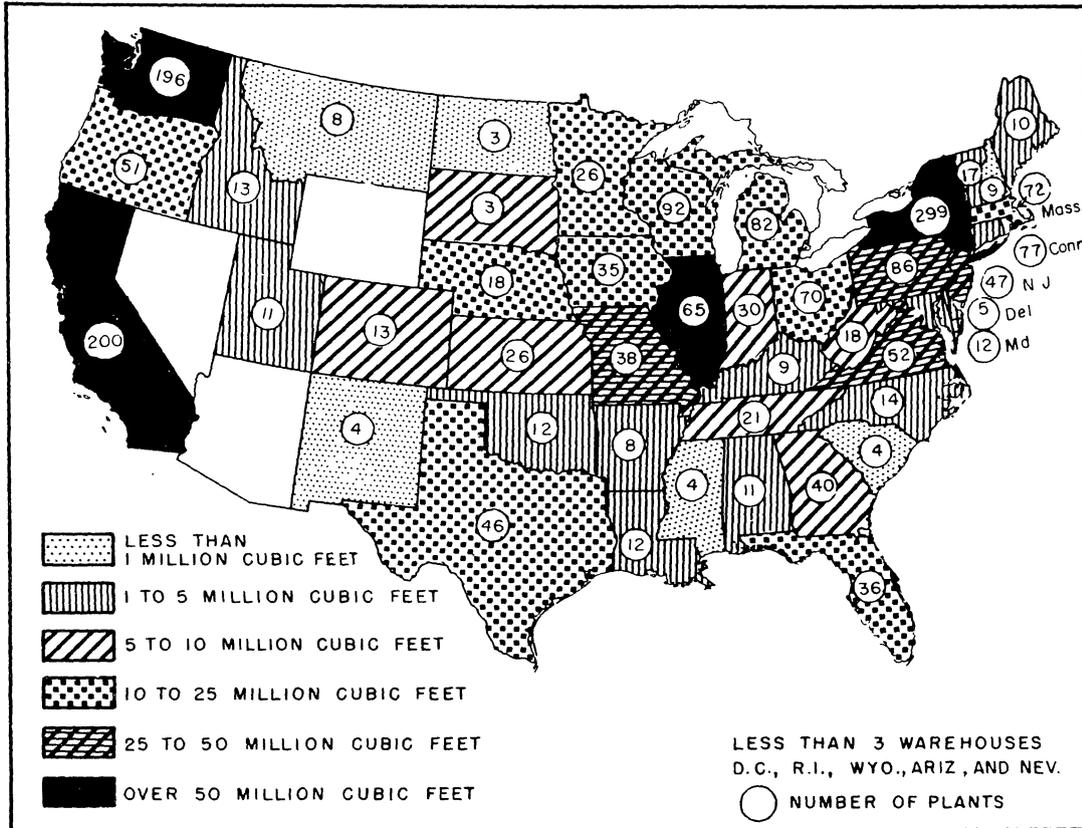


Figure 6.— Gross refrigerated storage space, by States, October 1, 1951.

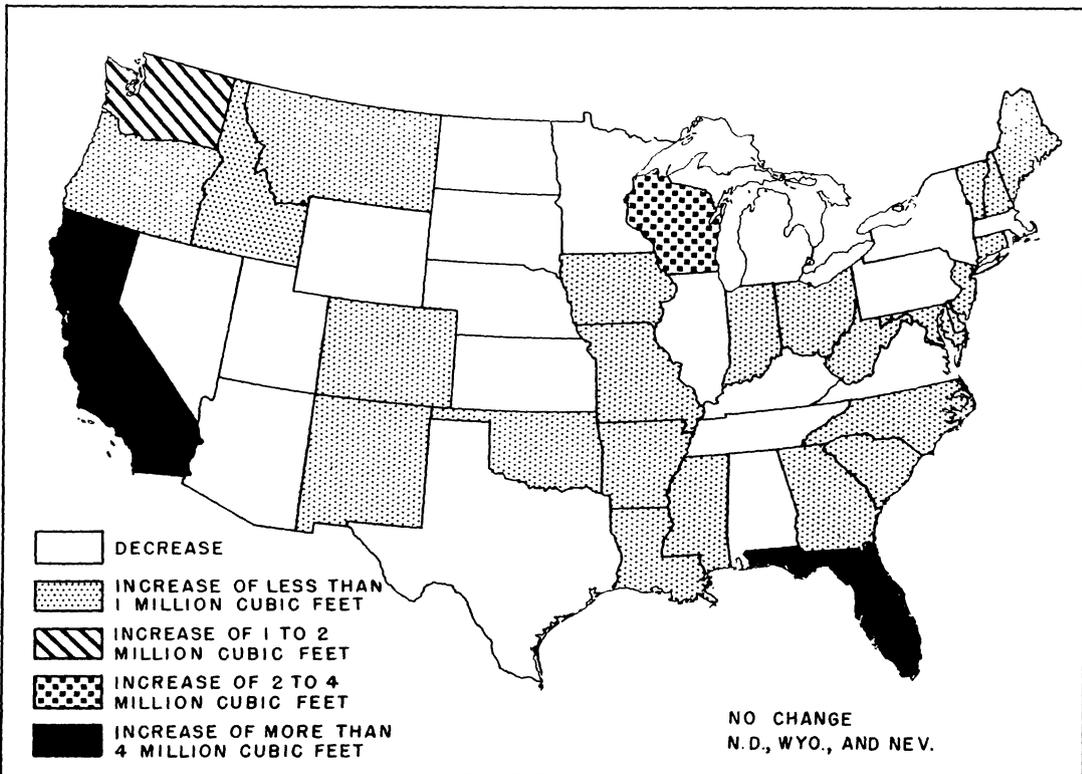


Figure 7.— Increase or decrease in refrigerated net piling space, by States, October 1, 1949 to October 1, 1951.

REFRIGERATED STORAGE CAPACITY, BY STATES

Many factors influence the location and growth of refrigerated storage space in a State, and of these factors such considerations as proximity to points of food production, rail and port facilities, and population density, are important. Accordingly, the historical pattern as developed through the years has brought a preponderance of warehouse space to the States east of the Mississippi River. The cumulative capacity gains since 1890, the date generally accepted as the beginning of the refrigerated warehousing industry, has sustained the advantage of the Eastern States over those west of the Mississippi.

Nevertheless the gap between these two geographic areas has been narrowing as a result of new construction attendant with the growth of industry and population in the West. This trend was first evidenced in the 1947 survey of refrigerated warehouses when the Pacific Coast States ranked ahead of all other regions in terms of storage capacity. But, on a State to State basis, New York has continued to maintain its relative position as the leader. The Empire State reported 299 plants, engaged in the storage of foods, with a collective capacity of more than 87 million cubic feet, which was an adjustment downward since 1949, and a gain of only 19 million cubic feet during the 30-year period ended October 1, 1951. Not only does New York lead in total storage capacity (fig. 6) but the State also has more sharp freezer space than any other State and it ranks second with respect to freezer and cooler storage space (table 10).

More than one-half of the storage capacity in New York is classified as public general space. By comparison, this capacity is more than twice the public warehouse space reported by New Jersey and Pennsylvania and is almost equal to the combined capacity for all refrigerated warehouses in the East South Central, West South Central, and Mountain regions (table 12).

If Washington State should increase its refrigerated storage capacity by an additional 2 million cubic feet, New York would be unseated as the State with the greatest storage capacity. Washington reported more than 85 million cubic feet of storage space for the 1951 survey, a gain of 2 million cubic feet since 1949 (fig. 7). Expansion in public, private, and semiprivate space has gained for this State the second ranking position, whereas only 10 years ago it ranked third in the Nation with 63 million cubic feet of storage space and was not even among the 10 leading States in 1921. With not more than 14 million cubic feet of space on October 1, 1921, Washington today has 13 million cubic feet of public general warehouse space; 6 million cubic feet of private and semiprivate space; about 2 million cubic feet of meat-packing space; and over 64 million cubic feet of apple house space. (Tables 12, 13, and 15.) Thus, from 1921 to 1951 an increase in capacity in excess of 600 percent was achieved.

The Western States can also claim the third ranking position in the Nation with California's 70 million cubic feet of refrigerated warehousing space. With 200 plants in the State, California is second only to New York but both have about the same number of public general warehouses. Next to the greatest sharp freezer capacity is in California available for public use, and the greatest freezer capacity is also in this State. California can lay claim, too, as the leading State with respect to private and semiprivate general warehouse space and a growth record of more than 50 million cubic feet from 1921 to 1951.

Table 10.--Total refrigerated storage capacity of all types of warehouses, by States, October 1, 1951 ^{1/}

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
Maine.....	10	569	345	280	1,194	477	263	217	957
New Hampshire.....	9	54	30	435	519	49	25	350	424
Vermont.....	17	283	451	1,084	1,818	205	384	909	1,498
Massachusetts.....	72	11,647	3,227	9,001	23,875	7,038	2,200	6,287	15,525
Connecticut.....	77	429	306	3,628	4,363	304	208	2,914	3,426
New York.....	299	21,905	7,972	57,135	87,012	15,732	5,516	43,262	64,510
New Jersey.....	47	13,646	4,469	10,585	28,700	8,994	3,079	7,461	19,534
Pennsylvania.....	86	9,661	3,177	18,257	31,095	6,558	2,494	14,076	23,128
Ohio.....	70	8,052	2,182	12,903	24,137	6,098	1,539	10,031	17,668
Indiana.....	30	2,450	1,318	5,727	9,495	1,783	900	3,467	6,150
Illinois.....	65	18,067	12,142	39,415	69,624	12,658	7,517	29,304	49,479
Michigan.....	82	6,674	3,290	11,454	21,418	5,006	2,346	8,555	15,907
Wisconsin.....	92	2,943	2,065	12,927	17,935	2,304	1,619	9,931	13,854
Minnesota.....	26	6,178	2,974	3,925	13,077	4,226	1,883	2,642	8,752
Iowa.....	35	5,948	3,453	8,694	18,095	4,435	2,504	6,176	13,115
Missouri.....	38	10,597	1,748	15,079	27,424	7,309	1,093	9,912	18,314
North Dakota.....	3	278	13	-	291	184	12	-	196
South Dakota.....	3	360	1,604	3,039	5,003	298	1,110	2,011	3,419
Nebraska.....	18	6,849	891	4,282	12,022	4,986	611	2,903	8,500
Kansas.....	26	4,225	981	4,849	10,055	2,880	509	3,433	6,822
Delaware.....	5	298	272	670	1,240	237	191	573	1,001
Maryland.....	12	2,233	488	1,188	3,909	1,423	335	950	2,708
Virginia.....	52	1,698	2,467	22,283	26,448	1,296	1,912	18,134	21,342
West Virginia.....	18	25	691	4,989	5,705	16	529	4,228	4,773
North Carolina.....	14	425	466	1,335	2,226	311	340	1,055	1,706
South Carolina.....	4	55	81	145	281	36	49	101	186
Georgia.....	40	814	3,065	5,406	9,285	570	2,399	4,115	7,084
Florida.....	36	11,936	375	1,791	14,102	8,472	271	1,170	9,913
Kentucky.....	9	1,164	362	1,693	3,219	760	240	1,227	2,227
Tennessee.....	21	3,222	1,065	3,587	7,874	2,355	688	2,877	5,920
Alabama.....	11	1,033	144	819	1,996	715	106	624	1,445
Mississippi.....	4	19	417	475	911	15	309	383	707
Arkansas.....	8	437	99	543	1,079	293	70	381	744
Louisiana.....	12	1,910	417	1,168	3,495	1,520	322	993	2,835
Oklahoma.....	12	1,322	501	2,361	4,184	928	414	1,844	3,186
Texas.....	46	11,767	2,032	7,460	21,259	8,855	1,371	5,304	15,530
Montana.....	8	241	32	231	504	186	27	197	410
Idaho.....	13	1,635	178	975	2,788	1,235	142	731	2,108
Colorado.....	13	2,626	303	2,877	5,806	1,962	177	1,864	4,003
New Mexico.....	4	103	6	122	231	78	5	92	175
Utah.....	11	1,862	249	805	2,916	1,333	153	546	2,032
Washington.....	196	9,322	10,016	65,731	85,069	6,906	7,125	52,801	66,832
Oregon.....	51	5,397	5,607	13,506	24,510	4,406	4,476	9,709	18,591
California.....	200	19,130	8,980	42,098	70,208	13,664	6,714	31,720	52,098
Other States.....	8	3,221	569	829	4,619	2,297	392	594	3,283
United States.....	1,913	212,710	91,520	406,786	711,016	151,393	64,569	306,055	522,017

^{1/} Only those States having 3 or more warehouses are listed.

Illinois warehousemen could report only a little more than 69 million cubic feet of refrigerated storage space which places that State fourth in order of importance. However, in terms of its relative position in the East North Central region, Illinois is the leading storage center with 18 million cubic feet of sharp freezer space; 12 million cubic feet of freezer space; and 39 million cubic feet of cooler space. These capacities are almost equal to the combined warehouse capacity in Ohio, Indiana, Michigan, and Wisconsin.

Since the difference in storage capacity between States ranking first and second is about 2 million cubic feet, and less than a million cubic feet of space separates the third and fourth ranking States, it is possible that a reversal in positions could occur by the time of the 1953 survey. Even the fifth position appears to be loosely held by Pennsylvania with 31 million cubic feet of storage space. Although total capacity fell off almost 3 million cubic feet since 1949, the relative position of Pennsylvania did not change but the difference now existing between it and the sixth leading State—New Jersey—is narrowed to less than 3 million cubic feet as compared with 5 million cubic feet of space in 1949.

On the basis of warehouse capacity reported by these five leading States, almost half of all the space in the country is located within their boundaries and, in addition, these five States support more than two-fifths of all the public general warehouse space. Their sharp-freezer capacity—78 million cubic feet—is equivalent to a third of the national capacity and, moreover, these States have reported 42 million cubic feet out of a total of 91 million cubic feet of freezer space in the Nation. Capacity in the cooler range amounts to 222 million cubic feet as compared with a national total of 407 million cubic feet.

If an array were made of the above-named States and 5 additional States to complete a list of the first 10 States in the Nation, the following would be included: New Jersey, Missouri, Virginia, Oregon, and Ohio, with a total capacity of 131 million cubic feet of refrigerated storage space. Thus, two-thirds of all the refrigerated warehouse space in the country may be found in these 10 States.

Storage capacity of meat-packing plants, public apple houses, and private and semiprivate apple houses, by States, is shown in tables 14, 16, and 17. The capacity of refrigerated storage space, by States, used for fishery products is shown in table 18 and figure 8.

Table 11.--Refrigerated storage capacity of space capable of holding minus 20° F., by States, October 1, 1951

State and region	Public general warehouses			Total		
	Plants	Gross space	Net piling space	Plants	Gross space	Net piling space
	Number	1,000 cu. ft.	1,000 cu. ft.	Number	1,000 cu. ft.	1,000 cu. ft.
Massachusetts.....	6	199	112	10	258	144
Other States.....	6	142	103	10	336	243
New England.....	12	341	215	20	594	387
New York.....	25	3,564	2,585	41	3,900	2,800
New Jersey.....	5	199	127	9	257	155
Pennsylvania.....	9	1,252	866	15	1,392	968
Middle Atlantic.....	39	5,015	3,578	65	5,549	3,923
Ohio.....	6	492	374	7	495	376
Indiana.....	4	210	120	7	299	156
Illinois.....	9	8,677	5,819	11	8,856	5,945
Michigan.....	6	2,514	1,861	16	3,455	2,565
Wisconsin.....	6	491	379	14	974	712
East North Central.....	31	12,384	8,553	55	14,039	9,754
Minnesota.....	5	862	577	9	1,322	911
Iowa.....	7	356	285	14	1,025	782
Missouri.....	8	1,416	1,068	9	1,469	1,110
Kansas.....	9	1,263	821	13	1,549	1,052
Other States.....	5	1,318	971	9	2,569	1,801
West North Central.....	34	5,215	3,722	54	7,934	5,656
Virginia.....	4	144	112	8	195	157
Florida.....	4	86	59	12	2,584	1,968
Other States.....	10	212	146	12	243	167
South Atlantic.....	18	442	317	32	3,022	2,292
Tennessee.....	6	1,649	1,206	8	1,663	1,216
Other States.....	3	40	29	6	61	45
East South Central.....	9	1,689	1,235	14	1,724	1,261
Oklahoma.....	3	308	204	4	342	231
Texas.....	9	1,442	1,019	12	1,460	1,030
Other States.....	6	320	206	6	320	206
West South Central.....	18	2,070	1,429	22	2,122	1,467
Colorado.....	5	390	301	7	1,091	933
Other States.....	8	846	639	11	1,056	808
Mountain.....	13	1,236	940	18	2,147	1,741
Washington.....	13	580	409	26	1,608	1,112
Oregon.....	8	441	316	15	778	639
California.....	38	2,748	1,972	51	3,421	2,458
Pacific.....	59	3,769	2,727	92	5,807	4,209
United States.....	233	32,161	22,716	372	42,938	30,690

Table 12.--Refrigerated storage capacity of public general warehouses, by States,
October 1, 1951 ^{1/}

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.							
	Number								
Maine.....	5	510	319	190	1,049	461	243	143	847
Massachusetts.....	21	10,697	2,176	4,015	16,888	6,385	1,419	2,588	10,392
Connecticut.....	4	335	140	37	512	233	93	27	353
New York.....	80	19,874	3,906	27,618	51,398	14,357	2,817	20,694	37,868
New Jersey.....	17	12,763	3,662	7,895	21,320	8,523	2,343	5,252	16,118
Pennsylvania.....	38	8,921	2,777	11,662	23,360	5,983	2,235	8,846	17,064
Ohio.....	19	7,388	1,735	8,606	17,729	5,599	1,230	6,063	12,892
Indiana.....	8	1,809	660	1,314	3,783	1,339	491	907	2,737
Illinois.....	26	14,512	3,442	16,994	35,048	10,276	2,250	13,146	25,672
Michigan.....	13	4,705	1,920	5,681	12,306	3,517	1,335	4,044	8,926
Wisconsin.....	19	1,875	402	5,869	8,146	1,515	320	4,544	6,379
Minnesota.....	11	3,091	1,647	1,721	6,459	2,154	1,044	1,168	4,366
Iowa.....	12	3,076	5	944	4,025	2,462	5	696	3,163
Missouri.....	21	9,325	1,213	7,843	18,381	6,571	810	5,591	12,972
Nebraska.....	4	3,414	91	598	4,103	2,666	70	492	3,228
Kansas.....	11	2,627	193	2,610	5,430	1,827	160	1,912	3,899
Delaware.....	3	298	257	211	766	237	176	155	568
Maryland.....	4	2,178	307	188	2,673	1,375	206	122	1,703
Virginia.....	12	1,067	1,631	5,801	8,499	813	1,220	4,312	6,345
North Carolina.....	8	363	454	623	1,440	255	331	468	1,054
Georgia.....	29	489	2,644	3,946	7,079	378	2,084	2,961	5,423
Florida.....	19	5,893	266	1,647	7,806	3,955	186	1,058	5,199
Kentucky.....	3	996	306	841	2,143	647	199	556	1,402
Tennessee.....	13	2,993	822	2,578	6,393	2,208	535	2,101	4,844
Alabama.....	6	975	131	817	1,923	668	101	623	1,392
Mississippi.....	4	19	417	475	911	15	309	383	707
Arkansas.....	4	340	90	386	816	223	66	258	547
Louisiana.....	8	1,143	417	1,127	2,687	883	322	953	2,158
Oklahoma.....	7	1,252	149	1,187	2,588	867	97	809	1,773
Texas.....	28	11,041	1,480	4,838	17,359	8,367	1,090	3,539	12,996
Idaho.....	6	667	178	279	1,124	418	142	215	775
Colorado.....	7	1,638	30	1,206	2,874	1,226	27	921	2,174
Utah.....	5	1,675	-	469	2,144	1,223	-	344	1,567
Washington.....	28	6,290	4,111	2,457	12,858	4,690	2,675	1,594	8,959
Oregon.....	16	3,444	3,959	2,949	10,312	2,857	3,394	2,336	8,587
California.....	78	16,937	7,150	18,103	42,190	12,055	5,495	13,510	31,060
Other States.....	18	3,924	1,084	2,416	7,424	2,808	785	1,776	5,369
United States.....	615	168,634	50,171	156,141	374,946	120,066	36,305	115,107	271,478

^{1/} Only those States having 3 or more warehouses are listed.

Table 13.--Refrigerated storage capacity of private and semiprivate general warehouses, by States, October 1, 1951 1/

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.							
	Number								
Maine.....	3	29	24	1	54	16	18	-	34
Vermont.....	3	188	443	361	992	135	377	306	818
Massachusetts.....	14	401	728	287	1,416	301	573	250	1,124
New York.....	77	1,413	2,584	6,835	10,832	1,008	1,570	4,583	7,161
New Jersey.....	9	857	746	404	2,007	453	686	325	1,464
Pennsylvania.....	9	561	136	366	1,063	426	121	245	792
Ohio.....	15	479	123	717	1,319	361	91	570	1,022
Indiana.....	6	268	97	562	927	251	82	456	789
Illinois.....	7	2,295	6,450	8,752	17,497	1,519	4,011	5,303	10,833
Michigan.....	18	1,705	917	1,926	4,548	1,318	712	1,534	3,564
Wisconsin.....	65	314	376	4,595	5,285	225	266	3,593	4,084
Minnesota.....	8	1,311	39	75	1,425	1,024	24	56	1,104
Iowa.....	11	1,136	136	658	1,930	775	94	491	1,360
Missouri.....	3	53	-	441	494	41	-	341	382
Nebraska.....	9	2,007	57	855	2,919	1,490	35	593	2,118
Kansas.....	6	528	260	463	1,251	316	176	281	773
Maryland.....	3	30	63	50	143	24	49	39	112
Virginia.....	4	347	278	10	635	225	177	8	410
North Carolina.....	3	62	-	303	365	56	-	261	317
Georgia.....	4	98	19	171	288	78	17	148	243
Florida.....	17	6,043	109	144	6,296	4,517	85	112	4,714
Kentucky.....	3	161	17	412	590	108	11	336	455
Louisiana.....	3	726	-	41	767	613	-	40	653
Texas.....	11	124	81	882	1,087	81	68	646	795
Montana.....	5	107	8	51	166	86	6	43	135
Idaho.....	6	947	-	661	1,608	798	-	485	1,283
Utah.....	4	59	33	12	104	36	23	8	67
Washington.....	32	2,669	2,123	1,007	5,799	1,899	1,763	860	4,522
Oregon.....	19	1,985	1,240	826	4,051	1,543	923	540	3,006
California.....	83	1,786	1,137	15,192	18,115	1,342	747	11,300	13,389
Other States.....	12	224	152	306	682	160	104	240	504
United States.....	472	28,913	18,376	47,366	94,655	21,225	12,809	33,993	68,027

1/ Only those States having 3 or more warehouses are listed.

Table 14.--Refrigerated storage capacity of meat-packing plants, by States,
October 1, 1951 ^{1/}

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
Massachusetts.....	3	542	310	1,717	2,569	346	201	1,116	1,663
New York.....	25	381	665	4,998	6,044	188	451	3,296	3,935
Pennsylvania.....	14	9	251	1,519	1,779	3	127	946	1,076
Ohio.....	14	180	324	3,480	3,984	134	218	2,515	2,867
Indiana.....	12	373	561	3,139	4,073	193	327	1,662	2,182
Illinois.....	17	1,159	2,221	11,410	14,790	862	1,234	8,982	11,078
Michigan.....	4	211	427	1,342	1,980	98	281	922	1,301
Wisconsin.....	7	754	1,287	2,437	4,478	564	1,033	1,775	3,372
Minnesota.....	7	1,776	1,288	2,129	5,193	1,048	815	1,419	3,282
Iowa.....	12	1,736	3,312	7,092	12,140	1,198	2,405	4,989	8,592
Missouri.....	10	1,219	535	6,226	7,980	697	283	3,495	4,475
Nebraska.....	5	1,428	743	2,829	5,000	830	506	1,818	3,154
Kansas.....	6	1,070	528	1,606	3,204	737	173	1,105	2,015
Virginia.....	3	-	1	354	355	-	1	214	215
Georgia.....	7	227	402	1,289	1,918	114	298	1,006	1,418
Kentucky.....	3	7	39	440	486	5	30	335	370
Tennessee.....	6	229	236	630	1,095	147	148	466	761
Alabama.....	3	34	13	-	47	27	5	-	32
Oklahoma.....	5	70	352	1,174	1,596	61	317	1,035	1,413
Texas.....	7	602	471	1,740	2,813	407	213	1,119	1,739
Colorado.....	5	967	273	1,670	2,910	724	150	942	1,816
Washington.....	7	206	421	1,199	1,826	170	306	868	1,344
California.....	11	380	491	2,245	2,116	249	301	1,594	2,144
Other States.....	23	620	2,586	5,647	8,853	467	1,647	3,814	5,928
United States.....	216	14,180	17,737	66,312	98,229	9,269	11,470	45,433	66,172

^{1/} Only those States having 3 or more warehouses are listed.

Table 15.--Total refrigerated storage capacity of apple houses, by States,
October 1, 1951 ^{1/}

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
	Number								
New Hampshire.....	7	-	30	384	414	-	25	300	325
Vermont.....	13	-	8	723	731	-	7	603	610
Massachusetts.....	34	7	13	2,982	3,002	6	7	2,333	2,346
Connecticut.....	70	12	4	3,003	3,019	8	2	2,476	2,486
New York.....	117	237	817	17,684	18,738	179	678	14,689	15,546
New Jersey.....	19	18	25	1,671	1,714	12	20	1,325	1,357
Pennsylvania.....	25	170	13	4,710	4,893	146	11	4,039	4,196
Ohio.....	22	5	-	1,100	1,105	4	-	883	887
Indiana.....	4	-	-	712	712	-	-	442	442
Illinois.....	15	1	29	2,259	2,289	1	22	1,873	1,896
Michigan.....	47	53	26	2,505	2,584	43	18	2,055	2,116
Missouri.....	4	-	-	569	569	-	-	485	485
Kansas.....	3	-	-	170	170	-	-	135	135
Maryland.....	4	-	-	950	950	-	-	789	789
Virginia.....	33	284	557	16,118	16,959	258	514	13,600	14,372
West Virginia.....	13	1	139	3,576	3,716	1	120	3,211	3,332
Washington.....	129	157	3,361	61,068	64,586	147	2,381	49,479	52,007
Oregon.....	14	-	-	9,002	9,002	-	-	6,489	6,489
California.....	28	27	202	6,558	6,787	18	171	5,316	5,505
Other States.....	9	11	12	1,223	1,246	10	9	1,000	1,019
United States.....	610	983	5,236	136,967	143,186	833	3,985	111,522	116,340

^{1/} Only those States having 3 or more warehouses are listed.

Table 16.--Refrigerated storage capacity of public apple houses, by States, October 1, 1951 ^{1/}

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
	<u>Number</u>								
Connecticut.....	5	-	-	461	461	-	-	371	371
New York.....	29	215	249	10,381	10,845	161	210	8,555	8,926
New Jersey.....	6	2	25	850	877	1	20	686	707
Pennsylvania.....	7	95	13	1,879	1,987	76	11	1,546	1,633
Ohio.....	4	-	-	365	365	-	-	309	309
Indiana.....	4	-	-	712	712	-	-	442	442
Illinois.....	11	1	29	2,017	2,047	1	22	1,674	1,697
Michigan.....	5	29	4	516	549	23	3	410	436
Missouri.....	4	-	-	569	569	-	-	485	485
Virginia.....	18	284	557	13,504	14,345	258	514	11,469	12,241
West Virginia.....	3	1	15	1,173	1,189	1	13	1,142	1,156
Washington.....	29	108	86	14,585	14,779	102	54	11,810	11,966
California.....	5	1	19	375	395	1	14	308	323
Other States.....	11	18	-	1,030	1,048	16	-	834	850
United States....	141	754	997	48,417	50,168	640	861	40,041	41,542

Table 17.--Refrigerated storage capacity of private and semiprivate apple houses, by States, October 1, 1951 ^{1/}

State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
	<u>Number</u>								
New Hampshire.....	7	-	30	384	414	-	25	300	325
Vermont.....	13	-	8	723	731	-	7	603	610
Massachusetts.....	32	-	13	2,735	2,748	-	7	2,136	2,143
Connecticut.....	65	12	4	2,542	2,558	8	2	2,105	2,115
New York.....	88	22	568	7,303	7,893	18	468	6,134	6,620
New Jersey.....	13	16	-	821	837	11	-	639	650
Pennsylvania.....	18	75	-	2,831	2,906	70	-	2,493	2,563
Ohio.....	18	5	-	735	740	4	-	574	578
Illinois.....	4	-	-	242	242	-	-	199	199
Michigan.....	42	24	22	1,989	2,035	20	15	1,645	1,680
Maryland.....	3	-	-	774	774	-	-	680	680
Virginia.....	15	-	-	2,614	2,614	-	-	2,131	2,131
West Virginia.....	10	-	124	2,403	2,527	-	107	2,069	2,176
Washington.....	100	49	3,275	46,483	49,807	45	2,327	37,669	40,041
Oregon.....	13	-	-	8,857	8,857	-	-	6,351	6,351
California.....	23	26	183	6,183	6,392	17	157	5,008	5,182
Other States.....	5	-	12	931	943	-	9	745	745
United States....	469	229	4,239	88,550	93,018	193	3,124	71,481	74,798

^{1/} Only those States having 3 or more warehouses are listed.

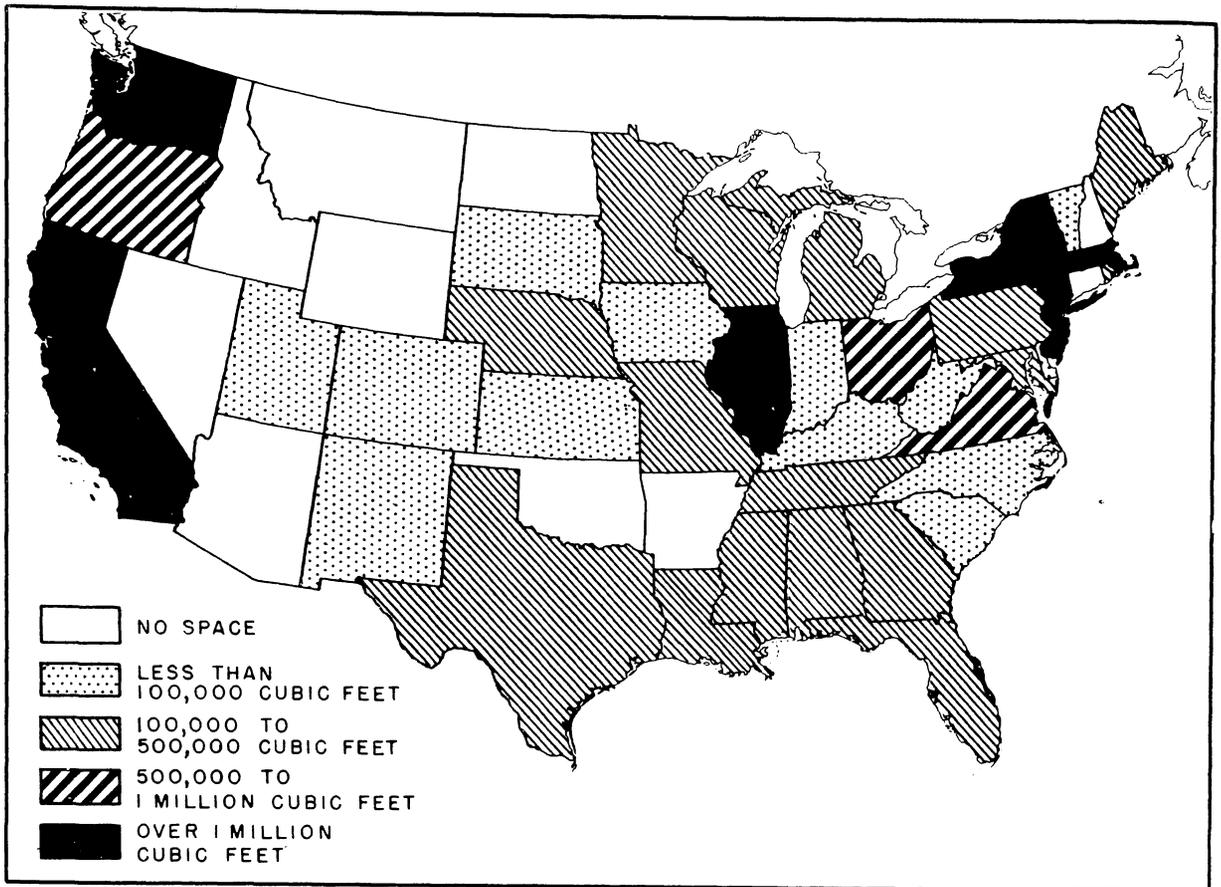


Figure 8.- Distribution of refrigerated storage capacity used for fishery products, by States, October 1, 1951.

Table 18.--Refrigerated storage capacity devoted to fishery products, by States, October 1, 1951 1/

State and region	Plants	Freezer	Cooler	State and region	Plants	Freezer	Cooler
	Number	1,000 cu. ft.	1,000 cu. ft.		Number	1,000 cu. ft.	1,000 cu. ft.
Maine.....	6	353	51	Maryland.....	5	115	21
Massachusetts.....	20	3,504	511	Virginia.....	7	445	130
Other States.....	3	191	2	Georgia.....	5	103	28
New England.....	29	4,048	567	Florida.....	10	201	3
New York.....	28	1,390	668	Other States.....	8	204	28
New Jersey.....	10	970	237	So. Atlantic.....	35	1,068	210
Pennsylvania.....	9	406	22	Tennessee.....	10	200	3
Middle Atlantic..	47	2,766	927	Alabama.....	5	164	1
Ohio.....	16	725	7	Other States.....	3	253	13
Indiana.....	3	74	-	E. So. Atlantic...	18	617	17
Illinois.....	10	921	132	Louisiana.....	4	141	-
Michigan.....	6	452	42	Texas.....	11	383	7
Wisconsin.....	10	143	222	W. South Central..	15	524	7
E. North Central.	45	2,315	403	Colorado.....	6	97	-
Minnesota.....	6	160	21	Other States.....	2	12	-
Iowa.....	6	82	-	Mountain.....	8	109	-
Missouri.....	5	407	25	Washington.....	16	1,092	439
Nebraska.....	4	124	-	Oregon.....	8	622	25
Other States.....	4	102	-	California.....	23	1,138	236
W. North Central.	25	875	46	Pacific.....	47	2,852	700
				United States.....	269	15,174	2,877

REFRIGERATED STORAGE CAPACITY, BY CITIES

The extent to which refrigerated warehouse space is concentrated in city areas is indicated in table 19 which shows that not quite two-thirds of the national capacity is located in 39 cities. By and large, many of these cities are concentration and terminal market points, but several cities are in producing areas with significant storage capacity for locally grown products. This is particularly true on the west coast where apple houses account for a major portion of the warehouse capacity.

Although New York State leads all others with respect to warehouse capacity, it is in the State of Illinois that the first ranking city—Chicago—is located. Chicago's capacity of 57 million cubic feet of storage space (table 19) surpassed by more than 10 million cubic feet the warehouse capacity in New York City. Refrigerated warehouse space in Chicago and New York have always held the first two positions in national ranking and both cities have so much more space than the cities next in order of importance that their relative positions have not been changed despite a net loss in space from 1943 to 1951. Chicago, for example, had over 71 million cubic feet of storage space in 1943 as compared with 57 million cubic feet in 1951. However, it is possible that the capacity reported in 1943 included some nonstorage space reported in error which gave rise to a significant net loss of 14 million cubic feet. New York City's warehouse capacity, on the other hand, has remained relatively stable but shows a slight reduction over a period of years. On October 1, 1921 reports from greater New York indicated a warehouse capacity of 47 million cubic feet. From then until 1931, expansion brought the city total to more than 54 million cubic feet but by 1941 the total was reduced to 49 million cubic feet. Thus, from 1921 to 1941 there was a net gain of only 2 million cubic feet. With about 46 million cubic feet in New York on October 1, 1951, the long-term change amounts to a net loss of a million cubic feet in 30 years.

On the west coast, Yakima with almost 30 million cubic feet of storage space ranks third among the cities in the Nation with respect to warehouse capacity. With almost all this space in the cooler classification, the city is second only to Chicago in the availability of this type of storage space. Only 3 million cubic feet separates the fourth and fifth positions for cities rated among those with the most warehouse capacity. St. Louis with 21 million cubic feet still has the advantage over Wenatchee with 18 million cubic feet of storage space. In addition to the above named 5 cities, the following, in order of importance, complete the list of 10 cities with the greatest warehouse capacity: Boston, Los Angeles, Dallas-Ft. Worth, Philadelphia, and Rochester. Collectively, the warehouse capacity of the last-named group of five cities is equivalent to 74 million cubic feet which compares with 172 million cubic feet of storage space in the group of 5 cities ranking first, second, third, fourth, and fifth.

Public general warehouses.—Storage facilities classified as public general warehouses are in greatest number in New York City. In this city, 26 plants with a total net piling capacity of 25 million cubic feet have for general storage over 11 million cubic feet of sharp freezer space; more than 3 million cubic feet of freezer space; and almost 11 million cubic feet of cooler space. No other city could equal New York's capacity in any of the specified temperature ranges as of October 1, 1951. (Tables 20, 21, and fig. 9.)

Table 19.--Total refrigerated storage capacity in cities having 3 or more warehouses and at least 3 million cubic feet net piling space October 1, 1951 ^{1/}

City and State	Plants Number	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.							
Boston, Mass.....	26	9,735	1,639	5,389	16,763	5,643	926	3,478	10,047
New York, N. Y.....	65	16,821	6,711	22,348	45,880	11,382	4,343	15,487	31,212
Buffalo, N. Y.....	15	3,697	144	2,717	6,558	2,653	124	2,143	4,920
Rochester, N. Y.....	20	2,666	1,002	9,029	12,697	1,881	752	6,818	9,451
Albany, N. Y.	11	1,852	170	3,490	5,512	1,314	103	2,486	3,903
Poughkeepsie, N. Y....	66	344	925	7,871	9,140	301	806	6,456	7,573
Medina, N. Y.....	23	941	250	6,580	7,771	667	193	5,349	6,209
Geneva, N. Y.....	11	1,211	375	4,829	6,415	939	289	3,756	4,984
Bridgeton, N. J.....	8	3,113	201	1,167	4,481	2,418	155	830	3,403
Philadelphia, Pa.....	22	6,631	1,428	5,751	13,810	3,871	1,125	3,960	8,956
Pittsburgh, Pa.....	5	1,813	1,063	2,607	5,483	1,336	825	1,902	4,063
Chambersburg, Pa.....	5	157	48	3,803	4,008	106	44	3,308	3,458
Cleveland, Ohio.....	15	4,093	863	6,611	11,567	3,215	582	4,539	8,336
Cincinnati, Ohio.....	5	1,686	221	2,389	4,296	1,187	171	1,871	3,229
Indianapolis, Ind.....	8	1,072	925	3,537	5,534	660	617	2,023	3,300
Chicago, Ill.....	34	16,854	11,493	29,015	57,362	11,730	7,144	20,783	39,657
Detroit, Mich.....	11	4,130	1,925	5,631	11,686	3,039	1,273	3,973	8,285
Milwaukee, Wis.....	9	1,776	334	2,399	4,509	1,394	279	1,887	3,560
Green Bay, Wisc.....	14	336	44	3,490	3,870	271	32	2,834	3,137
Minneapolis, Minn. ...	10	3,124	2,025	3,231	8,380	2,148	1,337	2,205	5,690
St. Louis, Mo.	20	6,066	1,115	13,877	21,058	4,199	746	10,590	15,536
Kansas City, Kans. & Mo..	7	4,723	106	2,656	7,485	3,207	61	2,001	5,269
Omaha, Nebr.....	10	6,170	753	3,353	10,276	4,450	515	2,196	7,161
Winchester, Va.....	16	112	861	11,151	12,124	107	711	9,628	10,446
Waynesboro, Va.....	8	291	3	3,979	4,273	243	2	3,313	3,558
Nashville, Tenn.....	7	2,328	246	1,777	4,351	1,723	170	1,492	3,385
Dallas - Ft. Worth, Tex.	12	9,489	1,130	3,996	14,615	7,311	643	2,780	10,734
Seattle, Wash.....	17	2,405	3,132	2,050	7,587	1,748	2,058	1,220	5,026
Takoma, Wash.....	11	2,490	1,318	675	4,483	1,781	873	453	3,107
Yakima, Wash.....	60	594	2,606	26,568	29,768	452	1,781	21,665	23,898
Wenatchee, Wash.....	32	624	1,690	15,700	18,014	537	1,391	12,307	14,235
Brewster, Wash.....	17	49	120	10,389	10,558	45	96	8,657	8,798
Tonasket, Wash.....	13	-	-	5,248	5,248	-	-	4,369	4,369
Portland, Ore.....	14	1,789	3,335	2,395	7,519	1,645	2,717	1,699	6,061
Hood River, Ore.....	8	-	-	6,929	6,929	-	-	4,867	4,867
Los Angeles, Calif....	26	6,772	2,081	7,708	16,561	5,228	1,432	5,121	11,781
San Francisco, Calif..	17	2,619	1,473	5,471	9,563	1,710	1,323	4,281	2,314
San Jose, Calif.....	30	3,667	145	8,501	12,313	2,637	89	6,619	9,345
Sacramento, Calif.....	5	750	1,403	1,728	3,881	542	1,194	1,354	3,090
Total.....	713	132,990	53,303	266,035	452,328	93,720	36,932	200,701	331,353

^{1/} Includes the city and surrounding territory within a radius of 25 miles.

Chicago, with over 22 million cubic feet of warehousing space could not advance its relative position despite New York's net reduction of 3 million cubic feet in storage capacity from 1949 to 1951. Public general warehouse space in Chicago remained relatively unchanged since 1949, and Chicago continues to hold second position. In 1943 the city was first in order of importance with over 39 million cubic feet of space but New York was not far behind with almost equal capacity. By 1949, Chicago's capacity was surpassed by 6 million cubic feet and first ranking went to New York.

Dallas-Ft. Worth with 9 million cubic feet and Rochester with over 8 million cubic feet are third and fourth, respectively. Rochester advanced from fifth place to fourth, and Philadelphia, former holder of this position, slipped to sixth place. Los Angeles moved into the number 5 spot. Public warehouse space in Los Angeles totaled over 8 million cubic feet as compared with 6 million cubic feet of space in 1949 at which time her rank was tenth in the Nation. St. Louis was reduced in national ranking from sixth place to seventh but Boston advanced from eleventh to eighth place. Cleveland and Detroit each with 7 million cubic feet of storage space managed to stay on the list of the 10 cities with greatest refrigerated capacity, but their relative positions are of lower ranking than they were in 1949.

The above-named 10 cities are important storage centers for receipt and distribution of perishable and semiperishable foods as evidenced by the degree of concentration of storage space within their boundaries. On the basis of total public general warehouse space in the country, these cities account for more than two-fifths—110 million cubic feet—of the storage space. The remaining 20 cities shown in table 20 indicate additional areas of importance in the preservation of our food supplies. The public general warehousing industry in all 30 cities plays an important role not only within the cities but within the States as well. Except for the Mountain region, all geographic regions are represented by at least 1 or more cities having 3 or more public general warehouses with approximately 2 million cubic feet of storage space. Monthly storage occupancy in public general warehouses is shown in table 22 which indicates that on the average maximum occupancy is generally reached during the late fall or early winter months.

Table 20.--Refrigerated storage capacity in cities having 3 or more public general warehouses and approximately 2 million cubic feet or more net piling space, October 1, 1951 ^{1/}

City and State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
	Number	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
Boston, Mass.....	12	9,158	1,097	2,933	13,188	5,271	566	1,776	7,613
New York, N. Y.....	26	16,144	5,172	14,923	36,239	11,082	3,400	10,589	25,071
Buffalo, N. Y.....	3	3,102	-	1,234	4,336	2,171	-	902	3,073
Rochester, N. Y.....	16	2,581	651	7,877	11,109	1,823	464	5,898	8,185
Medina, N. Y.....	6	832	50	2,507	3,389	604	43	1,905	2,552
Geneva, N. Y.....	6	1,019	375	3,009	4,403	799	289	2,229	3,317
Bridgeton, N. J.....	4	3,112	175	737	4,024	2,417	134	528	3,079
Philadelphia, Pa.....	12	6,621	1,224	4,742	12,587	3,863	896	3,183	8,032
Pittsburgh, Pa.....	4	1,813	989	2,258	5,060	1,335	789	1,627	3,751
Cleveland, Ohio.....	5	3,937	698	5,036	9,671	3,095	463	3,491	7,049
Cincinnati, Ohio.....	3	1,679	134	1,423	3,236	1,181	92	994	2,267
Chicago, Ill.....	18	13,923	3,442	13,451	30,816	9,716	2,250	10,285	22,251
Detroit, Mich.....	6	3,938	1,653	4,191	9,782	2,954	1,095	2,982	7,031
Green Bay, Wisc.....	3	256	-	2,755	3,011	203	-	2,236	2,439
Milwaukee, Wis.....	4	1,386	112	1,842	3,340	1,140	95	1,395	2,630
Minneapolis, Minn....	6	2,237	783	1,262	4,282	1,590	542	902	3,034
St. Louis, Mo.....	8	5,042	598	5,139	10,779	3,409	447	3,972	7,828
Kansas City, Kans & Mo.	4	3,818	-	2,656	6,474	2,594	-	2,001	4,595
Norfolk, Va.....	4	172	1,085	1,311	2,568	108	838	933	1,879
Nashville, Tenn.....	4	2,145	119	1,415	3,679	1,602	83	1,193	2,878
New Orleans, La.....	5	974	297	970	2,241	727	220	823	1,770
Dallas-Ft. Worth, Tex.	8	8,935	667	2,286	11,888	6,928	435	1,686	9,049
Seattle, Wash.....	9	2,157	2,500	1,466	6,123	1,552	1,566	780	3,898
Takoma, Wash.....	7	2,100	1,173	118	3,391	1,492	767	83	2,342
Portland, Ore.....	8	1,753	2,878	1,465	6,096	1,615	2,518	1,167	5,300
Los Angeles, Calif....	16	6,369	1,751	2,665	10,785	4,934	1,219	1,938	8,091
San Francisco, Calif.	12	2,463	1,233	4,812	8,508	1,619	1,197	3,896	6,712
San Jose, Calif.....	7	2,750	-	3,088	5,838	1,365	-	2,153	4,018
Modesto, Calif.....	5	1,986	-	1,239	3,225	1,481	-	923	2,404
Sacramento, Calif....	4	750	1,403	1,277	3,430	542	1,195	1,013	2,750
Total.....	235	113,152	30,259	100,087	243,498	79,712	21,693	73,483	174,888

^{1/} Includes the city and surrounding territory within a radius of 25 miles.

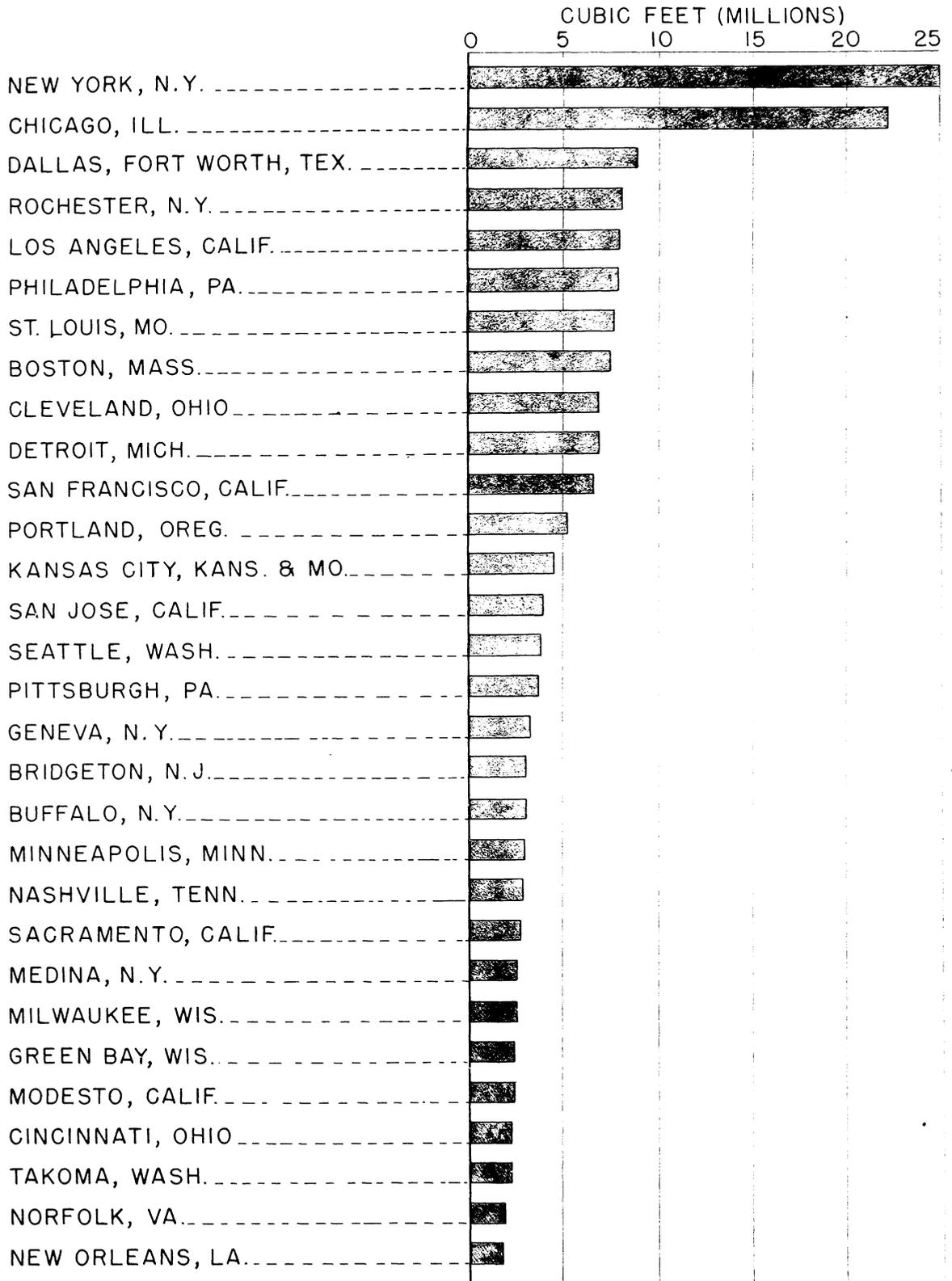


Figure 9.- Cities with 3 or more public general refrigerated warehouses, with 2 million or more cubic feet net piling space, October 1, 1951

(Includes the city and surrounding territory within a radius of 25 miles)

Table 21.--Refrigerated storage capacity in cities having 3 or more meat-packing plants and at least 2 million cubic feet net piling space, October 1, 1951 ^{1/}

City and State	Plants	Gross space				Net piling space			
		Sharp freezer	Freezer	Cooler	Total	Sharp freezer	Freezer	Cooler	Total
		1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.	1,000 cu. ft.				
	<u>Number</u>								
New York, N. Y.....	16	24	318	3,067	3,409	12	222	2,098	2,332
Indianapolis, Ind.....	4	346	357	2,546	3,249	174	181	1,306	1,661
Chicago, Ill.....	11	731	1,787	6,998	9,516	549	995	5,312	6,856
St. Louis, Mo.....	11	1,024	517	8,497	10,038	790	299	6,417	7,506
Madison, Wis.....	3	440	1,123	1,880	3,443	350	894	1,282	2,526
Minneapolis, Minn.....	4	886	1,242	1,970	4,098	559	794	1,303	2,656
Sioux City, Iowa.....	3	498	1,180	1,128	2,806	310	1,008	457	1,775
Omaha, Nebr.....	4	1,363	743	2,782	4,888	790	506	1,782	3,078
Dallas-Ft. Worth, Tex.	4	554	463	1,710	2,727	383	208	1,094	1,685
Denver, Colo.....	4	967	273	1,629	2,869	724	150	915	1,789
Los Angeles, Calif.....	6	229	293	1,699	2,221	152	190	1,255	1,597
Total.....	70	7,062	8,296	33,906	49,264	4,793	5,447	23,221	33,461

^{1/} Includes the city and surrounding territory within a radius of 25 miles.

Table 22.--Percentage of net piling space occupied at end of month in public general warehouses, 1940 - 1951

Year	Cooler											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	<u>Pct.</u>											
1940.....	39	36	37	41	45	52	55	57	57	61	60	52
1941.....	46	40	40	47	53	58	58	61	63	68	64	60
1942.....	55	52	55	58	66	68	69	70	74	74	66	60
1943.....	59	57	61	64	68	76	77	77	75	77	73	68
1944.....	68	74	80	82	84	85	84	81	78	80	76	72
1945.....	70	68	67	66	66	65	67	69	67	65	64	60
1946.....	60	62	67	75	77	79	76	80	78	80	77	69
1947.....	65	62	61	65	68	74	77	76	73	76	78	74
1948.....	69	65	59	62	65	67	67	65	64	64	59	54
1949.....	52	48	48	49	50	52	53	53	60	68	67	64
1950.....	59	55	54	54	56	60	61	64	63	72	71	67
1951.....	65	60	60	59	62	65	64	65	65	69	66	63

Freezer												
1940.....	66	63	58	55	58	65	69	68	69	68	71	78
1941.....	77	70	63	61	63	69	75	74	73	72	75	76
1942.....	76	72	67	62	64	69	74	77	79	79	76	75
1943.....	69	64	61	62	67	77	83	87	90	89	89	89
1944.....	89	92	88	85	87	87	89	89	89	86	83	80
1945.....	73	69	65	64	67	73	78	81	82	83	85	85
1946.....	83	81	80	79	80	80	86	88	87	87	85	86
1947.....	84	82	80	73	74	78	79	80	81	83	84	85
1948.....	84	81	75	70	70	71	72	72	71	72	72	72
1949.....	71	68	64	60	59	61	63	66	67	70	73	76
1950.....	75	74	69	67	64	69	71	74	74	78	79	81
1951.....	80	76	72	70	71	73	76	78	81	83	83	83

LIST OF TABLES and CHARTS

Tables

Refrigerated Storage Capacity in the United States

Table	Page
1.—Total refrigerated storage capacity in the United States, by type of warehousing operation, October 1, 1951.....	7
2.—Total gross refrigerated storage capacity in the United States, October 1, 1929 - October 1, 1951.....	9
Refrigerated Storage Capacity, by Geographic Regions	
3.—Total refrigerated storage capacity.....	14
4.—Refrigerated storage capacity of public general warehouses.....	16
5.—Refrigerated storage capacity of private and semiprivate general warehouses.....	16
6.—Refrigerated storage capacity of meat-packing plants.....	18
7.—Total refrigerated storage capacity of apple houses.....	18
8.—Refrigerated storage capacity of public apple houses.....	19
9.—Refrigerated storage capacity of private and semiprivate apple houses.	19
Refrigerated Storage Capacity, by States	
10.—Total refrigerated storage capacity.....	22
11.—Refrigerated storage capacity of space capable of holding minus 20°F..	24
12.—Refrigerated storage capacity of public general warehouses.....	25
13.—Refrigerated storage capacity of private and semiprivate general warehouses.....	26
14.—Refrigerated storage capacity of meat-packing plants.....	27
15.—Total refrigerated storage capacity of apple houses.....	28
16.—Refrigerated storage capacity of public apple houses.....	29
17.—Refrigerated storage capacity of private and semiprivate apple houses.....	29
18.—Refrigerated storage capacity devoted to fishery products.....	30

Table	Page
Refrigerated Storage Capacity, by Cities	
19.—Total refrigerated storage capacity in cities having 3 or more warehouses and at least 3 million cubic feet net piling space.....	32
20.—Refrigerated storage capacity in cities having 3 or more public general warehouses and approximately 2 million cubic feet or more net piling space.....	34
21.—Refrigerated storage capacity in cities having 3 or more meat-packing plants and at least 2 million cubic feet net piling space.....	36
22.—Percentage of net piling space occupied in public general warehouses, by months, 1940-1951.....	36

Charts

Figure	Page
1.—Distribution of gross refrigerated storage space, by temperature range and by type of warehouse, 1921 - 1951.....	4
2.—Distribution of gross refrigerated storage space, by type of warehouse, October 1, 1943 - October 1, 1951.....	7
3.—Distribution of refrigerated storage capacity, by size of warehouse, October 1, 1951.....	9
4.—Regional distribution of gross refrigerated storage space in the United States, by type of warehousing operation October 1, 1951.....	12
5.—Regional distribution of refrigerated net piling space in the United States, by temperature range.....	12
6.—Gross refrigerated storage space, by States.....	20
7.—Increase or decrease in refrigerated net piling space, by States, October 1, 1949 to October 1, 1951.....	20
8.—Distribution of refrigerated storage capacity used for fishery products, by States, October 1, 1951.....	30
9.—Cities with 3 or more public general refrigerated warehouses with 2 million cubic feet or more net piling space, October 1, 1951.....	35